

Authentic

SCIENCE FICTION MONTHLY

1/6

Nº 52



This month's featured novel:

STAR HAVEN by E. C. TUBB

Other stories by: Dan Morgan, Lionel Brooks, S. J. Bounds

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ONE SHILLING and SIXPENCE

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Authentic

SCIENCE FICTION MONTHLY

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H.J. CAMPBELL

Writes...

So here we are at Christmas time again, with peace and goodwill to all men on Earth and any other planet that's friendly. I wonder what the flying saucer boys think of all this oozing generosity—confined to a couple of weeks in the year. Ah, well, I'm no Scrooge, so I'll wish you all a very merry Christmas!

With that seasonal greeting over and done with I can get on to telling you some rather fine news that I hope will give you a happy new year. From the January 1955 issue we are going to give you a sixteen-page art paper section every month—nice glossy stuff that you usually find only in the ladies' magazines. The sixteen pages will not by any means

be ordinary pages. After all, you wouldn't expect to find ordinary pages in *Authentic*, would you? Every one will have an illustration, some of them half-tones, supporting special features and stories that are planned with *your* wishes in view. Here you have a thrilling picture-full supplement that is bound to please you.

This means that once more you'll be getting more from *Authentic* than from any other British science fiction magazine. (This trumpet I'm blowing came off a Christmas tree. Just what I wanted.)

I know that you'll agree with me that such an increase in quality deserves an increase in price. And I know that

you'll rejoice with me when I tell you that there *won't be* an increase in price. Still the same old 1/6. Why are we doing this? Because we love your bonny blue eyes! (Seriously, it's because our magazine has been doing rather well lately and we feel like passing some of the "take" to you.)

I think we're seeing the old year out reasonably well with this issue. The lead novel is one of Tubb's thought-provoking pieces, and we have another little gem from Dan Morgan. I wish that fellow wrote a bit faster. Len Shaw is back with a time travel piece and well-known Sydney J. Bounds gives us something sober and severe—just in case too much festivity goes to our heads.

The departments need no discussion. They are all good—even my own Milestones of Science piece. Tell me what you think of that, will you?

Now I'll go on and tell you something about this month's cover; you're probably wondering what it represents. But first, let me remind you again—DON'T MISS JANUARY'S ISSUE or my little heart will break. I've worked so hard on it. See you then—

H.J.C.

OUR COVER


JUPITER THE FLAMING GIANT

You couldn't live on this hell incarnate. No matter what kind of spacesuit the back-room boys turn out, it wouldn't do you any good on Jupiter. Because the gravity would crush you to a pulp. On Jupiter you would weigh nearly three times as much as on Earth. Your skeleton couldn't stand the strain. And above you there would be thousands of miles of thick atmosphere—atmosphere made of methane and ammonia and a few other poisonous gases that would instantly kill any form of life we know.

What you stand on would be ice so hard and cold that it feels like rock. But not for long. Every now and then a tremendous upheaval rips the ice asunder and sends up towering columns of searing gases and molten metals, so hot that nearby mountains shrink on the instant, only to be rebuilt anew by another quake somewhere else.

Around you there would be lakes and pools in plenty. Fire-pools. Lakes of white-hot metal bubbling and steaming with weird chemical reactions that send up thick, blinding palls of smoke. And the smoke and the ammonia and the methane get together and the flames ignite it and there is an explosion that makes the hydrogen bomb seem like a pop-gun crack. That's Jupiter. Sinners go there when they die.





LIFE WAS NOT ENTIRELY
BEER AND SKITTLES ON
THEIR . . .

STAR HAVEN

by
E. C. TUBB

TO CAPTAIN BARKER, interstellar flight had long lost any thrill it might once have had. It was too much like driving a bus with its predicted stops, regular flights and long months of boring routine between planet-falls. The procedure was always the same. A moment of strain as the ship snapped out of hyper-drive, an indescribable wrenching and a brief nausea as the familiar stars replaced the swirling rainbow patterns on the screens, then the ship would swing into matching orbital velocity with the target planet, contact made, the business done, and they would be on their way again.

He sighed as he leaned back from the control panel, staring idly at the mottled green-brown-blue ball seeming to hang motionless below them, and nodded towards the one man who, technically, had no right at all to be in the control room.

"Well, commander, there she is. Hyperon, second planet

of Procyon. A nice new Earth-type world suitable for habitation and exploitation and your future home."

Williams ignored the elderly captain's remarks, his eyes gleaming as he stared at the glowing screen. "When do we land?"

"We don't. The ship doesn't, that is. We'll drop you and your people by auxiliary." Barker twisted his head and stared at the radio operator. "Made contact yet?"

"Not yet, sir."

"No?" Barker frowned. "That's odd. Keep trying and let me know immediately they answer."

"Yes, sir."

"They're probably asleep," said Barker, and smiled at the expression on the young man's face. "Don't forget, Williams, it's been ten years since a ship called here last. You can hardly expect them to maintain a continuous radio-watch."

"Why not?" Williams made no attempt to disguise his impatience. "The manual

specifically orders that such a watch be maintained. There can be no excuse for failure to comply with the instructions." He frowned at the screen. "Another thing. The settlement was based at the edge of that lake, wasn't it? Where the river runs through that forest?"

"Was it?" Barker stared thoughtfully at the mottled ball. "Could be."

"Don't you know?"

"I could find out," snapped Barker, annoyed at the other's tone. "But if you think I can memorise the exact whereabouts of a hundred different settlements on a hundred different planets then you want to think again. That's what files are for."

"Never mind the files." Williams reached for the adjustment controls on the screen. "I've studied up on this planet, and that's where they should be." Abruptly the image expanded, seeming to flow away from the centre as details became clearer, and they stared at the image of

a lake edge, a river bank and a tiny, obviously man-made clearing. "There!" Williams rested his finger on the smooth surface. "That clearing, that's where they are."

"Are they?" Barker narrowed his eyes and made a final adjustment, steadying the image against the distortion of atmospheric heat currents. "Looks deserted to me." Impatiently he glared towards the radio-man. "Got them yet?"

"No, sir. The ether's dead; nothing but sun-static."

"Try a flare." Barker looked at the young commander. "Maybe their radio's broken or something. We'll see if any of them attempt visual signalling in answer to our flare." He squinted as a gush of brilliant orange limned the edge of the screen and pointed to a small, spinning shape falling towards the lake. "That should rouse them. Pyrotechnic sound-and-sight attention catcher." He smiled as the spinning shape suddenly expanded into a series of

brilliantly coloured smoke clouds, imagining the staccato explosions accompanying the light and smoke.

After ten minutes he said, quietly: "Try another." Then, fifteen minutes after that: "One more and we'll be on our way."

Williams glanced sharply at the elderly captain. "What do you mean?"

"What I said. Unless they answer we'll get moving. You and your people can return to Earth; it's our next stop anyway, and Hyperon can be written off as a 'bad' planet."

"No."

"Yes." Barker shrugged as he stared at the silent and deserted clearing. "Something's happened down there. Disease perhaps, dangerous native life, something lethal in the atmosphere, any one of a thousand things. It doesn't matter what it is, my orders are plain. Any colony failing to respond to signals is to be considered dangerous and must be abandoned."

"But you can't do that!" Williams stared desperately at the screen. "They may be in trouble, or away on an expedition, anything. You just can't abandon five hundred men and women merely because they didn't answer your signal."

"I can and I will," said Barker coldly. He stared shrewdly at the young commander. "I know what's on your mind, Williams. You're thinking that if you return to Earth you'll lose your command. Well, maybe you will, but isn't that better than landing here when you don't know what happened to the others?"

"I can't agree. Earth needs these new worlds, Barker, and too many of them are proving unfit for human habitation. You mentioned a hundred worlds a short while ago. Did you know that, of those hundred, only ten managed to support a colony for the first ten years? You know how things are back home. With the popula-

tion increase what it is we've got to find external sources of food and raw materials or face literal starvation. That's why we are founding these colonies. Not for population expansion, though we can use them for that too, but to grow and supply essential food for the home world. You can't just write off this planet because the colony doesn't answer."

"What do you want me to do?" Barker forced himself to remember that the commander was young, impetuous, and with a high personal stake in his decision. "Land and carry a virulent plague back to Earth? You know the dangers of that as well as I do. That is why this ship never lands, but uses the auxiliaries for ship to planet communication. And even if I did land, what then? I've a schedule to maintain and I can't waste time here even if I was equipped for it, which I'm not. This isn't an exploration vessel, Williams; this is only a transport, and, as such, is

needed back on Earth for more important things than just worrying about one world." He glanced at the screen and the deserted clearing. "Sorry, but there it is."

"Wait!" Williams swallowed as he looked at the screen. "There's one thing you can do."

"Yes?"

"You can land me and my people."

"Are you crazy?" Barker shook his head and reached for the controls. "You don't know what's down there and you might die within a day." He rested his finger on the alarm button. "No sense in talking about it. You know the rules."

"If you press that button," said Williams coldly, "I'll have you broken for cowardice."

"You'll what?"

"You heard what I said. You're an old man, Barker, and you've started to think like one. Space isn't for the old, and the Bureau is begin-

ning to realise that. There's a new world down there waiting to be exploited and you've no right to deny my request. If you insist on running from something you don't understand, then I'll see to it that the publicity breaks you."

"You young fool!" Barker surged to his feet, his heavy features mottled with rage. "I'm the captain of this ship and you and every man and woman aboard will do as I say. Damn you! I'll have you thrown in irons for this. Hurage!"

"Wait." Williams stepped back as the radio-man rose from his seat. "Never mind the rights and wrongs of it. Just imagine what the public will say. A new world, a potential granary, and you ran away from it without even a second thought. And it isn't your skin that I'm asking you to risk. All I ask is that you land me and my people as you were directed to do. What do you think the press will say? The public? They are short of food, Barker, and they pay

too much in taxes as it is. Do you think that the Bureau will hesitate to throw you to the lions if it would calm the people? If you think that, Barker, then you're a bigger fool than I thought you were."

"I . . ." The captain swallowed, his eyes glaring his hate of the young man, but he gestured Hurage to return to his chair. "What about the others?"

"My people?" Williams shrugged. "I'll take full responsibility for them. You will land us?"

"You know what you're doing, don't you?" Barker glared his contempt. "I know just what your threats are worth; you aren't concerned with what the people will say and think; all you're worried about is losing your own little world to play the dictator in. To satisfy your own conceit you're willing to risk the lives of fifty innocent people on an unknown, and as far as we can determine, lethal world. I

thought that you were low, Williams, but I didn't think that any man could be that selfish."

"That's enough!" Anger glowed in twin spots of red on the commander's cheeks. "I'm not asking for your moral condemnation and the future will prove that I'm right. Progress is determined by the sacrifice of the individual for the majority, and what does it matter if a thousand die so long as the race is advanced on the path of its destiny? In any case, we won't be as helpless as you seem to imagine. The original colonists had plenty of equipment and we can use that. My people are mostly trained personnel, scientists, the men and women who were to study Hyperon as soon as the economy of the settlement could afford to support them. We'll get along."

"You'll get along, you mean, don't you?" Barker openly sneered as he stared at the young commander. "What do you care for the others?"

"Never mind that. You'll land us?"

"Not so fast." Barker settled himself back in his chair. He seemed to have lost his anger and looked at the commander with an almost amused contempt. "Don't think that you can bully me, Williams. I don't need a young snippet like you to threaten me with adverse publicity, and don't forget that I happen to have a few more contacts than you imagine. If it came to the point, you would be the one to suffer, not I." He glanced at the screen and the empty, too-small clearing shown on it. "If you land you know that it will be ten years before a ship makes contact?"

"I know."

"And yet you want to be cooped up down there with men and women who will know that you've tricked them as soon as they land."

"I am their commander."

"I see." Barker looked towards the radio-man and shrugged. "All right, Williams.

You can have your kingdom—but your people must be warned and given free choice.”

“You insist?”

“Yes.”

“Then I have no choice. You’ll land us?”

“You will also sign and thumb-print a waiver accepting full responsibility?”

“Of course.”

“Very well, then.” Barker sighed heavily as he stared at the screen. “I’ll land you—and I hope that you get just what you deserve.”

He didn’t look at the commander as he gave the necessary orders.

THREE DAYS LATER WILLIAMS began to feel the first stirrings of doubt. At first the whole thing had seemed so simple. They would land. From records undoubtedly left by the original settlers they would know what dangers faced them, what had happened to the five hundred men and women set down to colonise a new world, and they would

be able to act accordingly. But it hadn’t worked out like that.

For one thing there were no records. For another there were no traces of any of the colonists. And suddenly the entire project began to take on a new and more sinister aspect. Not that the planet had shown any animosity towards them; quite the reverse in fact. The air was warm, the sun not too hot, the vegetation profuse and heavily laden with a diversity of fruits. In effect it was a paradise planet—but where were the people?

Irritably Williams glanced up from his desk as a shadow darkened the papers before him, then nodded as Hermitage dropped into a chair.

“Hello, Doc. Find anything?”

“No.”

“Did you examine the huts? The surrounding soil? The . . .”

“I know my job, Williams,” snapped the doctor. “As far as I can see there isn’t a trace

of the original settlers to be found, but I've made a few deductions."

"Save them." Williams thrust away his papers and eased the collar of his too-tight blouse. "Seen Gerald?"

"He's around. Why?"

"We're having a conference as soon as he gets back. Something must have happened to the colonists and I want to know what. Do I have to tell you why?"

"You do not." The doctor sounded very grim. "Now that the ship has gone we're stuck here, like it or not. If there's some bug lying in wait for us, or some native lurking in the forest waiting to use us as food, then we'd better get ready. Ten years is a long time."

"Regretting it, Hermitage?"

"Perhaps. Maybe it would have been a good idea if this half of the contingent had returned with the rest. Ten women and twenty men aren't really enough to develop a new world."

"But enough to find out just why it hasn't been already done." Williams glanced up as a second man entered the hut and frowned as he noticed the rumpled trousers and lack of uniform blouse. "Improperly dressed, Gerald?"

"Improper, hell! It's crazy to walk about in uniform in this heat. The proper dress for Hyperon is shorts and a coat of suntan—and you could do without the shorts."

"Perhaps, but you will please remember to wear uniform at all times."

Gerald made a rude noise, grinned at the expression on the commander's face, then winked at the doctor as he slumped in the remaining chair. "Shall we get on with it?"

"A moment." Williams stared through the open doorway. "What are the others doing?"

"As you ordered. Tidying up the settlement, checking stores and equipment, arranging their stuff and setting up laboratories." The ecologist

yawned and sagged even deeper in his chair. "Don't talk about work; the very thought of it makes me tired."

"Then you're going to be very tired," promised Williams curtly. He glanced down at his papers. "We've been here three days now and it's time we correlated our information. I've collected every scrap of written material in the settlement; there is surprisingly little of it, and none of it helpful."

"I wouldn't say that," protested Hermitage. "We know the analysis of the air, water and soil. We know the seasonal changes and other astronomical data. We know that nothing harmful to man was found in the first tests, and . . ."

"Please, doctor." Williams didn't look at Hermitage. "By 'help' I meant of course our main problem. You will naturally retest the water and air and other things you mention."

"Retest? Why?"

"We cannot afford to take anything for granted. The first tests obviously were at fault and it is up to us to discover in just what way."

"I don't see that."

"No? You surprise me, doctor. If everything is well here then where are the people?"

"How do I know?" Irritation swelled the doctor's neck. "I know where they aren't. They aren't dead and buried, that's for sure. There isn't anywhere near that amount of graves in the vicinity."

"There are some though?"

"Yes," admitted Hermitage reluctantly. "About fifty."

"About? Aren't you certain?"

"Fifty-two then, to be precise. All men. I dug them up to make sure. Does that satisfy you?"

"It checks with the official record," said the young commander quietly. "But was it wise to disinter them?"

"The graves were shallow and there was no danger. I

merely uncovered the skulls and reburied them immediately after examination. The graves were old and no flesh remained on the bones."

"Marks of fire?" Gerald leaned forward, his eyes serious. "Had the bodies been burned?"

"Yes."

"What?" Williams stared his horror and instinctively moved away from the doctor. Hermitage grunted his contempt.

"No need to get scared. The burning was obviously a precautionary measure and, anyway, they couldn't have died of plague, certainly not an alien infection."

"Why not?" Gerald narrowed his eyes in thought. "You're not going to tell us that old one about alien bacteria not being able to live in a human organism."

"That truism," said Hermitage stiffly, "still applies. Divergent species cannot infect each other with their own peculiar afflictions. Have you

ever heard of a man suffering from tobacco mosaic? Or a rattlesnake with mumps? Or a man suffering from hard pad or distemper? Those illnesses are all native to Earth and yet they remain confined to special groups. What chance then has an alien bacteria to infect a man and find within his body conditions suitable to their growth?" He gestured impatiently as the ecologist started to speak. "Oh, I know all about what happened on Alpha Four, and I'm not saying that it couldn't happen again, but that was a freak, and we're not likely to run into it again."

"Once was enough," said Williams grimly. "That's why the transports refuse to land. If it happened on Alpha Four, why couldn't it happen here also?"

"It didn't," snapped Hermitage; then, as he saw their expressions: "Damn it all can't you see it yet? Fifty-two men died out of five hundred men and women. All right.

But does that make it a plague? Of course it doesn't, and if it was what you're both afraid of, there would be evidence of it. Bodies lying where they had fallen, the huts burned, a litter of dead, but have we found anything like that? You know very well that we haven't. No. You can cut plague right out. I'll stake my reputation on it."

"A very one-sided bet," murmured Gerald, then took the sting from his words by smiling at the irate doctor. "Did you find anything else?"

"No."

"Nothing at all, doctor?" Williams raised his eyebrows.

"I've dug up fifty-two graves since we landed," said Hermitage tightly. "I've been over every inch of the settlement and covered most of the clearing. How much do you expect a man to do in three days?"

"There'll be time to rest after we have found what happened to the others," snapped Williams. "Now is the time to work."

"Oh? Then what have you done?"

"Gerald?" Williams ignored the question. "Did you discover anything important?"

"In three days?" The ecologist shrugged. "I did my best, but it isn't much. The bushes—you can hardly call them trees—seem to bear a continuous supply of fruit. By that I mean that there are flowers, buds, immature and mature fruit all on the same plant. That seems to be general with every plant I've examined. The trees proper, some of them grow over three hundred feet tall, are all nut-bearers. Some have fruit similar to a coconut, others have fruit like a brazil; there are a multitude of types, but all have that one thing in common. They all bear a continuous supply of fruit."

"Isn't that unusual?" Hermitage seemed to have recovered his good humour; at least he had lost his angry flush.

"Very unusual," agreed

Gerald. "So unusual that I'm tempted to believe that it is no accident."

"How do you mean?" said Williams sharply. The ecologist shrugged.

"We know that, owing to the almost circular orbit and lack of axial tilting, the climate here is very constant. Even at the poles it never gets cold enough to allow of the formation of ice caps and here at the equator we live in a perpetual summer of even days and nights. That would help account for the lush vegetation but . . ."

"No climate would account for one plant bearing both flowers and fruit at the same time," snapped Williams. "The entire concept is against nature."

"Whose nature? Earth's or Hyperon's? They needn't be the same, you know. That's one of the things we've got to find out. And, when you come to think of it, it isn't any more incredible than several types of fruit growing on the same tree. They do it quite

often back home. Graft an apple on a pear, several types of apples on the same tree, and even I believe, two or more kinds of soft fruit on the same branch. That's against nature too, but it works I've seen it."

"Freaks," said Williams irritably. "Distortions produced by the hands of men. Are you trying to tell me that these plants are the product of some alien race?"

"No, not that exactly, but it's something to think about."

"Maybe, but we have no time or concern for idle speculations." Williams riffled his papers. "Anything else?"

"Little insect life. What there is seems mostly to be some sort of bee, and there is a beetle which lives in the dirt and apparently acts like the scavenger beetles back home. No birds, no signs of any animal, just bees to pollinate the flowers and beetles to clear away the debris. A nice neat system."

"Yes." Williams looked down at his desk. "I have here

the official record of the original colony. I'm afraid that it doesn't tell us much; for some reason the entries weren't kept regularly. I won't bother with reading it to you; you can read it later if you wish, but it is the only concrete thing we have to go on." He riffled the pages. "Landing, setting up of pre-fab huts, burning a clearing, assembling the helicopter and power pile." He glanced at Gerald. "The plant is still working, by the way, but there is no sign of the 'copter." He returned to the book. "The first death took place within a month of landing. Red spots, fever, some delirium and great pain. At first they thought it was plague but it didn't appear to be contagious. Other deaths followed all pretty close to each other. Bodies were buried and burned in their graves. All the deaths were those of men." He turned more pages. "Initial crops planted. Apparently they were never harvested, and there is no mention of any large-scale explora-

tion." Irritably he slammed the volume shut and banged it on his desk.

"The first commander must have been a fool. He didn't even bother to keep his records correctly. The entries become briefer and briefer, and finally stop. At no time is there a hint of why they left, where they went to, and what made them go."

"I knew the first commander," said Hermitage slowly. "I wouldn't have called him a fool."

"What else was he?"

"Maybe he just got tired of keeping senseless records?" suggested Gerald. "Seems a waste of time to me; almost as bad as growing crops when the trees and bushes are loaded with food."

"That's the wrong attitude," snapped Williams. "Any colony must be run efficiently and the entire purpose of this settlement was to exploit the planet and grow food for export to Earth. That is why we are here and I suggest that you keep our object in mind."

"You said that they left," said Hermitage thoughtfully. "What makes you think that?"

"Isn't it obvious? Are they dead? If so where are their bodies? Did something come out of the lake and snatch them away? If so why wasn't it recorded? No. All the evidence points to the fact that they must have left of their own free will. They deserted! They walked out on all they had done and left their equipment and supplies to rot, and went—where?"

"It's a big planet," said Gerald slowly. "They must have taken the 'copter, of course; that would be the logical thing to do."

"As far as I can remember," said Hermitage dryly, "a helicopter, one of the portable ones, that is, can carry four men at a time. Allow one for piloting and that leaves four hundred and forty-seven men and women to shift by air. A hundred and forty-nine double journeys. Logical? When they could have walked?"

"Walked to where?" Williams banged his fist down onto the desk. "This discussion isn't getting us anywhere. I must remind you that we have no time for idle speculation; it is essential that we find out what happened to the first settlers. It isn't important to argue about where they went or how. We must find out *why*! What made them forget their duty to Earth? Why did they neglect their sacred trust? That is what we must discover and, in the meantime, we can continue with the work they neglected to do." He rose to his feet. "Gerald! You will work with Hermitage and determine whether or not the local fruits are edible and harmless. Hermitage! Despite your conviction that we have nothing to fear from alien disease, I want you to test and test again everything and anything which could menace our health. Ignore the previous records. If they showed their neglect in one

thing, they may have been careless on others."

Hermitage nodded and rose to his feet. "Is there anything else?"

"Not at the moment."

"Then I'll get to work. Coming, Gerald?"

"Sure." The ecologist rose and stretched himself. Williams glowered at him then, just as he was about to leave the hut, called after him.

"Gerald!"

"Yes? What is it?"

"Your uniform. Wear it."

"Wear it? But . . ."

"That's an order, Gerald!"

"I . . ." The ecologist thinned his lips; then, the habit of a lifetime asserting itself, nodded and stepped into the brilliant sunlight.

Williams smiled as he returned to his desk.

THE SETTLEMENT WAS TOO quiet. Among huts and sheds built to hold five hundred, the thirty-one members of the second group were lost. Williams walked from group to group, giving terse orders,

watching the slow progress, and always the main question faced him wherever he turned.

Why?

Why had they gone? Where had they gone? Were they all dead, their bodies hidden somewhere on the planet, or were they still alive, captives perhaps, or what? He didn't know, and as the days passed, the conviction grew that he would never find out.

He examined the huts a dozen times, carefully scanning the walls for scribbled words, turning the scanty furniture for a mislaid scrap of paper, a letter, anything to throw a light on the problem, but it was always the same. Nothing. The equipment was in good condition, the workshops ready to be used, and even the farm tractors were still operable once they had been stripped and reassembled. Power flowed from the atomic pile and the whine of engines echoed over the silent planet as great machines tore at the dirt and seeded the fertile

ground with seeds from the bulging stores.

But why hadn't it all been done before?

It annoyed him. All his life he had been used to the obeying and giving of commands, and in his universe there was no room for doubt. Discipline was everything and orders were things to be obeyed blindly and without question. Nothing should have stopped the first colonists from doing their job—nothing, that is, but death, and apparently they hadn't died. He paused by the door of a storeroom, watching a tractor make its slow way across the too-small clearing, then stepped inside the cool dimness. A woman looked up from where she sat sorting seeds, then stared down at her task again.

Williams was used to this. For some reason the others tended to ignore him and, while obeying his orders, made no effort to accept him as a friend, volunteer conversation, or treat him with

other than a distant courtesy. Not that he minded. He was firm in the conviction that a commander should not permit undue familiarity with his subordinates, and his insistence on the wearing of correct uniform had done nothing to make him popular.

"How is it going?" He stepped towards the woman and stared down at the heaps of glistening seeds. "Fertile?"

"Mostly, sir." The "sir" sounded very stilted. "I'm testing them now for germination."

"Good." He frowned at the bulging sacks. "Have you any idea whether or not these are native produced?"

"They are all terrestrial seeds, sir. They were brought here with the first settlers."

He nodded, waiting for her to elaborate on the bare statement; then, when she did not, sighed and asked the obvious question.

"How long would you say they have been here?"

"About ten years, sir."

"Ten years! But that's impossible! They planted at least one crop."

"Perhaps they did, sir, but these seeds are ten years old." She stared up at him, her features an expressionless mask, but somehow he had the impression that she was laughing at him. "Could it be that they planted some other crop than wheat?"

"It's possible," he admitted, then frowned as he tried to remember what the records had stated. "I believe that the first planting was one of maize."

"That would account for it, sir. These seeds are those of wheat."

"And they never used them." He nodded and abruptly snapped his fingers. "Of course! If they planted a crop there should be signs of it. Tell me, would maize continue to grow without attention?"

"If it grew there should still be signs where it was planted," she admitted. "It would have reverted to a wild state, of

course, but it should still be recognisable."

"And yet the clearing shows no signs of cultivation other than bare soil." He stared at the woman. "You're an agonomist I take it? What's your name?"

"Brenson, Mary Brenson, scientist second class." She rose to her feet. "Shall we go and investigate?"

There were no seeds. There was nothing in the rich black loam but scurrying beetles and normal humus. Williams bit his lips as he watched the girl sift the soil and examine it, running it through her long, slender fingers, finally to admit defeat.

"Nothing, sir."

"And should there be?"

"If they germinated, yes. If not . . ." She shrugged, wiping her hands on her coverall, and tipped the sample of soil back into its container.

"You mean that they would have rotted away?"

"Perhaps. They could either have shrivelled and remained,

or rotted. There is at least one other alternative."

"Radiation?" He shook his head. "The soil was tested for that before the settlers landed. There is no reason to assume that the seeds were killed by an excess of ground radioactivity."

"I wasn't thinking of that," she said slowly. "But did you notice the beetles?"

"You think that they would have destroyed the seeds?" He frowned as he thought about it, acutely aware of the gaps in his knowledge. Commanders were picked for their ability to stick to orders and not for ingenuity and initiative, but even he could see the flaw. "No. If that were the case how would the native plants survive? If the beetles ate all seeds there is no reason why they shouldn't eat roots and other vegetation. Why pick on terrestrial seeds?"

"Some subtle difference perhaps?" Mary sat down as she returned to her task. "If I may suggest a line of investigation?"

"Please do."

"Plant control areas. Plant some boxes which have been sifted and freed of beetles. Plant others with beetles. See which grows and which doesn't." Again he had the impression that she was amused by his ignorance. "Shall I attend to it?"

"Yes." Shyness and a sense of inferiority made him even more curt than normal. "Report to me when you have determined the cause. Give the project top priority." He nodded and walked out into the brilliant sunlight, annoyed with himself for feeling disturbed and yet warm with the satisfaction of getting something done. Gerald waved to him as he crossed towards the hut he was using as an office.

"Commander."

"Yes?"

"I've just finished the tests on the fruit and nuts." Gerald was grinning. "Both edible and harmless and, if I might say so, very nice too."

"You've eaten some?"

"Of course."

"You . . ." Williams swallowed his anger as he noticed some of the others staring at them with undisguised curiosity. "Come inside."

Within the hut and safe from curious stares he turned savagely on the smiling ecologist. "Gerald, I gave you more credit than to act like an irresponsible fool. How dare you eat the native fruit without my permission?"

"What?" The ecologist blinked then, as he responded to the commander's anger, his mouth set in sullen lines. "Didn't you tell me to determine whether or not the local produce was edible?"

"I did,"

"Well?"

"I said nothing about eating it, Gerald, and I also asked you to determine whether it was both edible and harmless. Do I have to explain to you the difference?"

"Hardly, commander."

Anger made the ecologist clench his hands and his voice became brittle with

strained politeness. "If I may enquire of the commander, how would he suggest that I determine what he wished to know?"

"Don't act with me, Gerald. You have chemicals I assume, and techniques by which you can recognise the presence of poisons? Or do I have to teach you your job too?"

"Hardly that, commander, but I would suggest that each keeps to his own. Chemical reagents may be fine for warning us that the fruits contain poison, heavy metals, and other harmful substances, but in the final analysis it is whether or not the human metabolism can assimilate alien food in which we are interested. And there is only one way to do that—eat it and wait. If it can't be digested it will be rejected. If it can, then, with the aid of radioactive tracers, we can determine whether or not it acts like normal food."

"Interesting," sneered Williams. "So you martyred yourself in direct disobedience to

my orders. What do you expect me to do now—give you a medal?"

"No, and I can do without sarcasm as well!" Gerald took a step forward, then remembered who he was and where he was and straightened to attention. "I think that you are being unfair. You gave me a double task, to determine whether or not the native produce was both edible and harmless, and I am perfectly aware of the difference. There could be some unknown element, some combination of vegetable acids or mixture of cellular juices which could prove to be a powerful narcotic, a stimulant or even a hypnotic. Such things are not rare and, even though some fruits are delectable to eat and perfectly edible, yet to eat them is to become hopelessly dependent on them. The case of the phorypi on Quendis illustrates what I mean. The planet had to be abandoned because of the homicidal frenzy the juices induced. There are other cases, not so

dramatic perhaps, but just as insidiously deadly. I cannot as yet tell whether or not the native produce falls into that category, but as there is only one sure way to find out I acted on the assumption that you would want to know as soon as possible."

"Of course." Williams slumped into a chair, sweating, half-ashamed of his outburst, and yet trying to justify it by telling himself that he was acting for the good of all. He didn't even think of apologising. To him, that would have been a confession of weakness, and a commander must never be weak. He gestured towards a chair. "Sit down."

"I would prefer to stand, sir, if you have no objection."

"Sit down, Gerald!"

"Yes, sir."

"How long will it take to determine whether or not we can safely eat the native fruits?"

"A couple of weeks, say a month to make certain."

"I see." Williams stared down at his hands. "Have you discovered any alternative source of food? Fish perhaps?"

"Not yet. The insect life is rare, but I will test to see whether or not we can eat the beetles. I discount the bees, though there may be honey in the forest. You want me to search the lake for fish?"

"Yes. We can hardly rely on beetles."

"Why not? Many races eat beetles and other insects and a starving man can't be choosy." The ecologist stared at the sweating commander. "Anything wrong?"

"No, but it is as well to be sure about these things." Williams forced himself to sound casual. "After all, we are here for at least ten years, you know."

"I know." Gerald didn't sound too happy about it. "Did you get around to checking the radio?"

"Yes. Nothing wrong there

at all and that's another thing which worries me. If the first colonists had discovered something wrong with Hyperon, a disease for example, or an alien menace, or something which made it imperative that they leave the vicinity of the settlement, then why didn't they record a tape to be played back to the ship when triggered by the incoming signal? That would have been the simple and obvious thing to do." He sighed. "It's becoming more and more obvious that my predecessor was hopelessly incompetent."

"Hermitage wouldn't agree with you," said Gerald dryly.

"Perhaps not, but Hermitage claims to have known the man. I didn't, and I'm not letting sentiment blind me to the fact that he was criminally negligent in his duties. One thing, however, I can promise. Nothing like it will happen again."

"No?"

"No. From now on a rigorous discipline is to be maintained. No one is to leave the clearing

unless they are in parties of five, and all personnel will carry sidearms. I have drafted a schedule of operations and we will hold regular conferences. No one is to leave the clearing at night under any circumstances and, of course, guards will be maintained as at present."

"In other words," said Gerald quietly, "there is to be no relaxation of discipline."

"Exactly."

"Sounds to me as though you expect trouble."

"I expect nothing. I try to anticipate everything."

"And yet in the two weeks we've been here none of us has ever been threatened in any way. There has not been the slightest trace of any animal, certainly none large enough to harm us, and as far as we can determine there is no cause to suspect any danger. Don't you think that your precautions are a little extreme?"

"I am the best judge of that, Gerald. Merely because

we have seen no animals doesn't mean that they don't exist."

"I disagree. We are situated on a natural watering place for any large animals and yet we have seen no trace of them. I have ventured into the forest and there are no trails or spoor marks. If there were animals here they would leave some signs; they couldn't help it, and I will stake my professional reputation that this area is devoid of animal life."

"I can only quote your own remarks to that asinine statement—it is a one sided gamble." Williams rose stiffly to his feet. "My orders will be obeyed, Gerald, and it is your duty, as it is that of every man and woman on the planet, to see that they are carried out to the letter. That is all."

"I . . ."

"That is all, Gerald. You have work to do?"

"Yes—sir!" The ecologist made the title sound almost an insult and rose to his

feet so abruptly that the chair skittered across the floor and fell against the wall. For a long moment the two men stared at each other. Gerald, red-faced with heat and anger, his uniform crumpled and unbuttoned, his hands trembling from the anger boiling within him. Williams, tall and rigid, young and immaculate in his trim uniform, very calm and even a little contemptuous.

"You forget yourself, Gerald. I had intended to ignore your past lapses, but now I see that I have no alternative than to report you for insubordination and lack of co-operation."

"Report and be damned!" Gerald didn't look back as he walked away from the commander.

THE RIVER WAS A RIPPLING stream of clear, blue-green water running between high banks and shaded by the tall trees, spilling over a low waterfall as it tumbled down to meet the placid waters of

the lake. Gerald lounged against the soft grass, enjoying the feel of sunlight and warm air on his bare skin, and idly watched the bobbing float attached to a crude fishing rod stuck at an angle in the dirt of the bank.

"I think you've got a bite," said Hermitage. The doctor pointed with a stalk of grass and raised himself up on one elbow as the ecologist began to haul in the line. "Another false alarm?"

"Not this time." Gerald grinned as a shiny body broke the surface and wriggled as he swung it through the air towards him. "Look at it!"

"Careful." Hermitage moved away as the strange creature flopped on the grass. "It might be dangerous."

Together they examined the alien fish. It was roughly the same size as a trout, with gaudy colouring and a crest of spines running along the back. The eyes were prominent, the mouth set low on the body, and the fins quivered like the wings of

insects as they beat vainly against the air. Suddenly, as they watched, it began to expand, puffing up like a distorted balloon to at least three times its original size and looking a little like a Japanese dragon.

"Defence mechanism," said Gerald, thoughtfully. "That means it probably isn't poisonous." Gently he removed the fish from the hook and threw it back into the water. Immediately it collapsed, shrinking back to its original size, and, with a blur of fins, darted away to the shelter of the far bank. "That's three types we've found so far. The one which had vestigial legs, the one which folded itself into a prickly ball, and the balloon fish." Deftly he rebaited the hook with a piece of nut. "I wonder what we'll find next?"

"You'll find trouble if Williams ever hears that you've thrown them back without examining them." Hermitage selected a fresh stalk of grass and chewed the

end to a pulp. From further down the river, past the waterfall and at the edge of the lake, a burst of laughter echoed among the trees, and the sounds of splashing rose above the soft thunder of the weir. Gerald grinned as he threw back the baited hook and relaxed again against the lush grass.

"The others seem to be enjoying themselves, anyway. I was surprised that our commander permitted them to go swimming." He looked at the doctor. "Do I recognise your cunning hand in this?"

"Perhaps," admitted Hermitage, easily. "I prescribed recreation for reasons of both health and morale, and, as the human body must be kept clean to remain efficient, it seemed a good idea to combine the two by letting half the personnel go swimming." He cocked his head and smiled as he heard the high voices of women mingling with the deeper tones of the men. "Williams didn't seem to like the idea of

mixed bathing, but I talked him out of it. Shouldn't be surprised if we don't have a few weddings soon, and the sooner we get sorted out the better."

"Romance by numbers," said Gerald, sarcastically. "Do you think our commander will approve of all his personnel taking time off for honeymoons?"

"Williams isn't so bad, really. It's just that he's never learned to relax."

"Williams," said Gerald, dispassionately, "is a pain in the neck—and you can quote me as having said so."

"Williams," corrected Hermitage, quietly, "is a product of his environment and we shouldn't blame him for something he can't help."

"Are you defending him now?"

"No, but I can explain him, and perhaps if you knew him better you wouldn't keep irritating him." He smiled at Gerald's expression. "All right then, let's say that

you wouldn't let yourself be irritated by him."

"I'd like to kill him and dance on his bones."

"Why?"

"Because I hate his guts, that's why. I don't mind a row. Damn it, I'm human and we can all make mistakes, but Williams gets under my skin. He lives by the rule book, and he is always right. He's a machine, a thing without emotion, a damn dictator who considers us all his slaves. To hell with him."

"Have you ever thought that perhaps he's already living in his own hell?" Hermitage flipped his stalk of grass into the river and stared at the ecologist. "He's an orphan, you know, and he's never known affection or the warm comfort of family life. As a boy he entered the Academy and lived beneath a spartan regime where discipline was the be-all and end-all of existence. Do this! Do that! Do the other! Obey, and obey, and obey until it was so drilled into him that

he had almost lost his own individuality. He grew up in the belief that to relax was immoral, to find enjoyment other than in work a crime, and his Bible was the rule book and manual. Now he can't help but follow his indoctrination. You know, of course, that he wanted Captain Barker to land us all here without informing us that the original colony had failed to reply to signals?"

"I know; one of the crewmen told me. Just the sort of thing I would expect from Williams."

"But you can't blame him. Hyperon was his one chance to be something and somebody. He took that chance and couldn't understand why we would possibly object to obeying orders from a higher authority. He was the commander; we were mere extensions to himself. To him it was as simple as that."

"Didn't he think that we might object to going to our deaths?"

"I doubt if he ever con-

sidered it." Hermitage reached for a fresh stalk of grass. "You know, his mentality isn't uncommon. We find it less among our own people, scientists and those in kindred trades, because we've had to learn to think for ourselves, but even with us it is surprising how we operate under a tremendous dead-weight of tradition and habit. With the masses it is even more so. People just don't think for themselves, and those few who do are still bound by false concepts. Take the food shortage, for example. It isn't anything new and it has been obvious for years, centuries, even, that one day the Earth would have more people than it could feed. The logical and sensible thing to do, of course, was to have practised intensive birth control, and some people did. The rest just didn't give a damn, and in that they were supported by their own governments. More people meant bigger armies, bigger armies meant war and conquest, and, nature

being what it is, wars inevitably resulted in an increased birth-rate. We don't have wars now and so there is no cutting down of the surplus, so we face starvation instead."

"Interesting, but hardly appropriate to our own circumstances."

"That's where you're wrong. It has everything to do with us. That's why we are here, for one thing. Even though we're ten light years away from home, yet we have brought our traditions with us. Obedience to a superior officer. Obedience to a code with which, logically, we now have no part. Obedience, always obedience, and yet we still never reason out for ourselves why we should obey at all."

"Anarchy?" Gerald shrugged and twitched his rod, more for something to do than for any hope of catching a fish. "We can't have that."

"Why not?"

"Well, it wouldn't work for one thing, and . . ."

"You see? You mention a word, then refute it in the same breath, and yet you haven't any real reason for refuting it at all. Anarchy, you say, and then immediately state that it wouldn't work—because? You don't know why? You haven't thought about it."

"Well? Would it work?"

"On Earth, no. Our civilisation is too interdependent for an individual to exercise free choice. In order to work at all our social system demands that the individual be subordinated to the state. Anyone trying to practise anarchy would soon be crushed by the majority who, while not knowing just why, recognise the fact that their existence depends on total obedience to the dictates of law and order. In such a society no one dares to be too different. You know of the chickens, of course?"

"Yes. Take a chicken, dye it a different colour or make

it in some way quite different to a normal bird, and the rest of them will kill it. The herd complex."

"Exactly, and that is just how men live today. Fit in, and you're safe. Be different and you're scorned, jeered at, despised, and in some cases, actually murdered. With thousands of years of that tradition behind us, how can you expect a man to be different from what he is?"

"I don't know." Gerald rose to his feet and, walking up the bank, pulled several lush fruits from a bush. Returning, he handed one to the doctor and immediately bit into one of the others. Juice trickled down his chin and dripped onto his bare chest. He looked at the untasted fruit in the doctor's hand.

"Go on and eat it; it won't hurt you."

"Perhaps not, but you know the orders."

"Orders?" Gerald almost choked as he doubled with laughter. "And you're the

one who has been preaching to me about thinking for yourself. Williams says, 'mustn't touch' and you, like a good boy, obey the nice commander."

"There's a good reason for that order."

"Sure there is. While he controls the rations he controls the people. I've been eating native produce for a month now and it hasn't harmed me a bit. More than that, I wouldn't eat other food now if I had the choice of any dish on Earth." He finished the fruit, licked his fingers, and reached for another. "Anyway, you'll have to get used to it soon."

"Why? In this climate our own crops should grow pretty fast and we have plenty of stores."

"You mean we found plenty of stores when we arrived," corrected Gerald, evenly. "The more I think of it the crazier it was to land here as we did. Williams must either have been a supreme

optimist or he knew more than he told us."

"Neither. He worked on the assumption that the first colonists would have done all they could to carry out their orders. He hoped to find intact machinery, bulging granaries, planted crops. In short, he expected to find that all the work necessary in taking over a new planet had already been done. It was a reasonable assumption."

"You think so?" Gerald shrugged. "I disagree. We still weren't sure that plague hadn't killed them off, or that the native food contained some subtle poison which could kill after several months. If it wasn't for the absence of bodies we still couldn't be sure, but now we can rule that out; at least I hope that we can. If not, then I'm going to be a very sick ecologist." He didn't seem at all worried.

"Then why did you come if you thought all that?"

"Why?" Gerald looked thoughtful. "I'm not really

sure. Adventure perhaps? The desire to pit my wits and skill against an alien environment? Maybe just because I was bored with interstellar flight and wanted to stretch my legs? I don't know. Do you?"

"You came because Hyperon was a challenge and you are a man. Men have always met their challenges; that's why we rule our own planet and are heading towards the stars. I don't think that you need probe your emotions to discover why any of us did what we did. You're as much a creature of your environment as Williams is of his." Hermitage smiled as he rose to his feet. "Think about it for a while; it may help you to understand him a little better."

"Where are you going?" Gerald finished the last of the fruit and wiped his mouth with a handful of grass.

"Down to join the others. You've eaten, but my stomach warns me that it's time for me to eat, too. Coming?"

"May as well." Gerald

lifted his line from the water, frowned at the empty hook, and shook his head as he wrapped the line around the crude rod. "They're getting crafty. Notice how they ate the bait without getting themselves caught?"

"I . . ." Hermitage stopped, his face blank and seeming to be drained of all life and feeling. Gerald froze, his head tilted as, rising above the murmur of the waterfall, a sound lanced through the soft air.

The sound of a woman screaming in an ecstasy of terror.

FOR A MOMENT SHOCK HELD them rigid, then, with an explosion of smoothly directed effort, they swung into action. Gerald dropped his rod, snatched up his weapon belt and tore the pistol from its holster as he ran towards the sound. Hermitage followed, crashing through the shrubs and swearing as his foot slipped on the grass. Both men broke onto the shore at the

same time and jerked to a halt as they stared towards the lake.

Something threshed on the surface.

It was big, with a smoothly rounded back and a shovel mouth open to reveal a pink gullet. From either side of the wide mouth a long, flat-tipped tentacle-like appendage extended, the broad, oar-like extremities churning the water to froth as they swept across the lake. Behind it, as if from a hidden tail, spouts of glistening spray shot upwards and made a rainbow pattern against the clear blue of the sky.

The swimmers had all left the water and had run to the far edge of the beach. The men had weapons in their hands, evidently recovered from their clothing, and the women, one of whom still screamed, retreated further toward the shelter of the forest. Even as Gerald watched, one of the men raised his pistol and fired directly towards the great bulk

The tiny slug couldn't have done much basic harm; in itself it would have been less than a pin-prick, but the tremendous velocity with which it travelled was capable of killing a man by hydrostatic shock and even to the sea creature it must have caused pain. Again the man fired, joined now by his companions, and the spiteful snarl of their pistols echoed over the surging waters of the lake.

Red spots showed against the smooth black skin of the rounded back, red spots marked with the white of fat and ruptured tissue, and staring at them, Gerald heard himself yelling a frantic warning.

"Stop it! Cease firing, you fools! You're only angering it!"

He might just as well have shouted to the wind.

The men were frightened. From an ideally peaceful bathe they had been shocked by the sudden appearance of

the unexpected and that, together with the nerve-rasping sounds of the screams, had triggered off the only reaction Earthmen knew when faced with danger. *Kill it!*

Kill it so that it can't ever hurt or frighten again. Kill it because it is big, because it is unknown, because it frightened us and we are ashamed of having been frightened. Watching the little flecks of fire from the muzzles of their weapons, Gerald knew that nothing he could do would stop them. Only death would do that. Their death, or the death of the thing which threatened them.

And the thing wasn't dying.

Red foam bubbled about its wounds and waves surged against the shore as the incredible bulk suddenly lunged forward. A tentacle lashed through the air, gouging a wide groove in the sand of the beach and spraying the marksmen with grit. Another surge, and a man, almost doll-like against the thing he faced, went spinning through the

air in a twisted mass of broken bone and smashed flesh. The firing halted as they ran from the advancing menace, and Gerald snapped quick instructions as he threw himself forward down the beach.

"Hermitage! They'll be trapped against the cliff unless we can draw it off. Aim for the eyes—if you can see them. Hurry!"

Sand plumed from beneath his feet and the pistol snarled in his hand as he squeezed the trigger, holding it back for continuous fire. Slugs whined towards the glistening bulk before him, and red spots blossomed like ugly flowers as he swung the weapon like a hose, trying to find a vital spot in the huge beast. Beside him, the doctor swore with a dull monotony as he recognised the hopelessness of what they were trying to do.

"It's like sticking pins in an elephant. We're only annoying it."

"I . . ."

Thunder and a gush of searing flame spurted from the head of the creature, and in the sudden shocked silence following the explosion, they could hear Williams' voice.

"Take cover. All of you get under cover!"

"He's got a projector!" Hermitage dragged at the ecologist's arm. "Let's get away from here. Quick!"

Gerald nodded, and together they ran away from the threshing bulk. As he dropped behind a boulder Gerald saw Williams, straight and tall in his uniform, standing on the brow of the low cliff, a rocket projector cuddled in his arms. Deliberately the commander took aim and a streak of fire flashed from the muzzle of his weapon to explode in incandescent fury against the head of the sea creature.

It shuddered, writhed, seemed about to lunge forward, then, as if realising that once fully out of the water it would be utterly helpless, opened its shovel mouth and

exposed its pink gullet as if to scream its defiance.

Williams fired directly into the gaping orifice, jerked the loading lever, and sent another rocket projectile after the first before the mouth could close. The twin explosions sounded as one, and with a convulsive shudder, the huge creature relaxed against the sand, half in and half out of the water which was its home.

Even then the commander wasn't satisfied, and not until he had blown off the two tentacles from the thing's head did he lower the projector and descend to the beach. Gerald met him, grinning in relief and admiration at the other's marksmanship.

"Good shooting, commander. Lucky that you used a low-charge projectile at first or we'd all have been deaf or dead by now."

"Call the people together. All of them."

"What?"

"You heard what I said." Williams stared bleakly at the strange monster until the

party had assembled. He frowned at the sobbing woman. "What's the matter with you? Are you hurt?"

"No." She took a deep breath and seemed to recover her composure. "I was swimming out in the lake and that thing came up beneath me. I was never so scared in all my life. I screamed and swam back to the others, but it was just like one of those nightmares. You know the one I mean. I just swam as hard as I could but I didn't seem to be able to get away from it. It was as if I wasn't moving at all, and those horrible arms . . ."

"That will do!" Williams glanced towards the other women. "Take her back to the settlement. All of you. The men will stay where they are." He waited until the near-hysterical girl had been conducted away, then turned to the men. "Who was on guard here?"

They didn't answer. Watching them, Gerald could guess what had happened. The day,

as usual, was hot. The water had been tempting and there had seemed little point in two of them standing an unnecessary guard. From the expression on his face it was obvious that Williams had reached the same conclusion.

"Let's put it this way," he said, tightly. "Who was supposed to be on guard? None of you? Or is it that you haven't the guts to own up?" He turned to the doctor. "Will you examine the injured man, please."

"I have." Hermitage didn't move. "I looked at him while you were descending the cliff. He's dead."

"I see. Where were you when this happened?"

"With Gerald. We were catching fish to test for edibility."

"Of course." Williams frowned at the ecologist's naked torso. "Out of uniform again, Gerald? Or did you have to dive after the fish? Never mind, I'll have something to say to you later. In

the meantime will you and the doctor please examine this creature. The rest of you get dressed and carry your dead comrade back to the settlement. I need hardly remind you that, if you had obeyed orders, he would be alive now. I can only hope that you consider your swim to be well worth the loss of a human life."

"That's not fair," protested Gerald. "They . . ."

"You will obey orders!" snapped Williams, curtly. "I can do without your moralising. Both you and the doctor will report to me as soon as you have finished. That is all."

"But . . ."

"Take it easy, Gerald!" Hermitage dragged at the ecologist's arm as he made to step after the commander. "What's got into you lately? You two can't meet without a battle."

"The swine! The dressed-up fool! You heard what he said."

"And he was right. I'm

blaming nobody, but if they had set guards this wouldn't have happened. Another thing, if Williams hadn't arrived with the projector there would have been more than just one man killed."

"Defending him again? Why don't you go and lick his boots?"

"Why should I? He doesn't like you and you don't like him. Must I hate you because he does? Must I hate him because you don't like him? You're acting like a child, Gerald. A man has the right to pick his own friends and I'm damned if I'm going to share your illogical dislike of the commander just because we are friends. Now, let's get to work."

"Yes." Gerald hesitated a moment, then held out his hand. "Sorry, Doc. I don't know why it is but I just can't stand uniformed authority. I get a perverse satisfaction out of being deliberately rude, of annoying them, of watching them squirm. They always seem so stupid to me, so

illogical, more like machines than men." He shrugged. "I know. If I feel like that then why did I join the Service? That's something else I don't know. Maybe I should have my head examined."

"Or your motivations vetted by a psychiatrist?" Hermitage smiled at the other's expression. "When I get time I'll have to straighten you two out, but in the meantime let's get to work."

It was dusk before they had completed their examination of the huge beast, and the combination of hot sun, fish smell and reeking juices made them glad to leave the hulking shape. Gerald stripped and plunged into the lake to cleanse himself of blood and slime, Hermitage standing watch; then they reversed positions while the doctor washed himself. Then, tiredly, they made their way back to the settlement. Gerald paused at the edge of the clearing.

"Look!" He pointed up towards the stars. "I wonder which one is Earth?"

"Sol, you mean. You couldn't see Earth from here even with a telescope." Hermitage stared up at the night. "I'm no astronomer, but we can find out if you're really interested."

"Should I be?"

"Perhaps—if you're going back there. But if you're not, then why worry? As far as I'm concerned Sol is just another star, and a pretty dim one at that. I . . ." He let his voice fade to silence and Gerald squirmed beneath the sudden grip on his arm.

"What . . ."

"Silence." Hermitage pointed towards the edge of the clearing and spoke in little more than a whisper. "See it? Over there beside the seed store?"

"No." Gerald squinted in the darkness. "I can't see anything."

"It's gone now." Hermitage released his grip and spoke in his normal tones. "Probably a trick of light and shade. This dusk and faint starlight is

deceptive, but I thought I saw a man standing just by that building."

"What of it? A guard perhaps, or someone out for a last stroll? It could even have been one of the women saying goodnight to her boy friend."

"Perhaps, but I don't think so. I had a different impression." Hermitage walked slowly towards the dim bulk of the store. "I could be wrong, of course, but maybe we can find something." A small handbeam glowed to life as he pressed the switch, the bright circle of light cutting through the gloom and shining on the soft loam around the building. "Careful now." The doctor moved back and forth, doubled like a monkey, the light shining down towards his feet. It swung, hesitated, swung again, then settled as Hermitage gave a grunt of satisfaction. "There! See it?"

Gerald looked, and swallowed, then looked again, hardly daring to believe what

he saw. There, centred in the circle of illumination, stark and unmistakable in the soft black dirt, rested the freshly made imprint of a naked human foot.

The foot of a child.

WILLIAMS SAT AT HIS USUAL desk, a thick volume open before him and a stylo in his hand. He nodded as they entered, completed his entry in the official record, and closed the book with a grim finality. He seemed tired, his youthful figure had lost of its vitality, and his eyes reflected the inner turmoil of a man who finds himself up against an unsolvable problem. He smiled as Mary Brenson came from the inner room, a pot of steaming coffee in her hand, then looked at the others.

"Coffee, gentlemen?"

"Thank you, commander," said Hermitage quickly, before Gerald could refuse. "Two cups, please, Mary. It's about time we got this heathen used to civilised habits again." He

smiled as he noticed the direction of the commander's gaze. "Commander!"

"Yes?" Williams almost blushed as he looked towards the doctor. "As you can see, Mary here has been invited to the conference. While waiting for you she thought it would be a good idea to brew some coffee."

"Naturally." Hermitage frowned at the expression on Gerald's face. Personally, he thought it a good thing that the commander should find the agronomist pleasant to look upon. There was nothing like marriage for softening up the most stringent martinet, and he was psychologist enough to know that once Williams had enjoyed the warmth of human relationships he would lose most of his official coldness and protective insistence on inappropriate ritual. "We found something of interest on our way here," he said, casually. "An imprint of a naked human foot beside the seed store."

"A naked foot?"

"That's right."

"Man or woman?"

"Neither. I would say that it was that of a child."

"A child?" Williams stared his incredulity. "Are you certain?"

"Well, no," admitted Hermitage, slowly. "It certainly wasn't big enough for that of a man, but it could have belonged to a small woman."

"Then that accounts for it. It was probably made by one of the women when they returned from the lake. As I remember none of them dressed, and it's possible that the print belongs to one of them." Williams dismissed the discovery and, to Gerald's amazement, Hermitage didn't press the point. "Now, to get down to important matters. First, did you complete your examination of the beast?"

"We did."

"Would it be possible that such creatures caused the abandonment of the settlement, either by raiding the

colony or by making it too dangerous to remain in the vicinity?"

"No." Hermitage sounded very positive. "For one thing the beast was far too large to have had any manœuverability outside its natural element. The only thing which it could move out of water were its tentacles, and their range is limited. For another, the gullet was far too small to permit of it preying on any large creature. In this respect it is like the whales on Earth, huge, but able only to swallow tiny life forms, plankton, shrimps, etc. The tentacles seemed to have no other purpose than to sweep water into the mouth. I would say that it was aroused only by the noise and splashing of the swimmers and probably surfaced from sheer curiosity. Also, it mustn't be forgotten that the woman swimmer, even though followed by the beast, was not molested by it, even though it could have overtaken her or killed her with its tentacles. The only

thing she suffered was shock induced by fear."

"And yet it killed a man."

"Only when stung by the high velocity pistols. If it had been left alone I believe that it would have returned to deep water."

"Perhaps." Williams stared down at his cup and absently stirred the fragrant liquid. "Mary! Would you like to tell us what you discovered from your test plantings?"

"We'll never grow a natural crop on Hyperon," she said, evenly. "The seeds will germinate and grow in treated soil, but are eaten by the beetles in untreated media. Obviously we cannot clear the fields of beetles and so we are only wasting time by trying to raise familiar crops."

"Not necessarily," objected Gerald. "The local plants are seed bearing, and that means their seeds must grow. Obviously, then, the seeds must have some subtle chemical, or perhaps a repellant coating which prevents the beetles from eating them. If we

could isolate that difference, treat our own seeds with it, wouldn't they grow then?"

"They should, and they probably would, but I have found that it isn't only the seeds which fall prey to the beetles. They will eat the shoots, too. I have raised some short-period crops, cress, mustard, radish, in treated soil and then exposed them to the beetles. They were devoured completely. Your theory about the chemical difference is probably the answer, but it could go further than that. It could be something other than a discoverable chemical. It could be an instinct in the beetles themselves, an odour, a colour even. We don't know and we may never find out. It would take a large-scale laboratory and years of trial and error experimentation to solve the problem."

"So we grow no crops," said Gerald, thoughtfully. "Too bad."

"There is one other way," said Williams. "If we could

eliminate the beetles then we could grow what we liked. Could that be done?"

"Over my dead body."

"Could it be done?"

"I don't know, and I don't want to find out. Altering the ecology of a planet is similar to performing a major operation on a creature you don't know the first thing about. We've tried it before, remember, and look at what happened. Rabbits were never meant to live in Australia. Some of the early explorers had the bright idea of altering the ecology of the continent by releasing a few pairs and so providing meat for the settlers. Fine—in theory. In practice, as the beasts had no natural enemies there, they increased until they became a menace to the community. So they tried infecting them with a restrictive disease to kill them off, and that worked fine—until the disease spread to countries where there were supposed to be rabbits. It killed them off there, too, and so the foxes and weasels, the

stoats and owls, all the creatures who depended on rabbits for food, starved. That upset the ecology still more, and there was all hell to pay until they managed to strike a new balance. Over twelve species of wild life became extinct through that experiment, Williams, and that was on Earth, a planet we should know something about. What damage do you think we could do if we tried altering the ecology of an unknown world?"

"You haven't answered my question, Gerald. *Could* you do it?"

"Perhaps. With about a hundred years of experimentation, a full staff and a few ship-loads of equipment. Then we'd have some idea of just what we were doing. Now? As far as I can see there are only the beetles and the bees. You want to get rid of the beetles. So we poison them—if we can, and then find out that they and the bees are in symbiosis and without the beetles the bees die. That

means no pollination, no fruits or nuts, no food. Or perhaps the beetles are restraining an earthworm type of culture. End the beetles and the worms eat everything alive on the surface. Is that what you want?"

"You're being insolent, Gerald."

"I'm getting fed up, Williams. You ask a question, I answer it, and then you've got to act all finicky like an old maid getting her stitches right. What's the matter with you? Can't you take 'no' for an answer?"

"Cut it out!" Hermitage thrust a cup of coffee into the ecologist's hand. "Drink this and keep quiet." He looked at the commander. "What he says is right. Any attempt to alter the ecology of a planet is asking for trouble. We can either live here or we can't, and if we have to tamper in order to remain, then we shouldn't be here at all."

"I agree," said Mary, quietly. "My recommenda-

tions are that we either abandon the idea of growing our own foods or, if we have to, grow them in isolated soil or in hydroponic tanks."

"That's no alternative, Mary." Gerald looked at the coffee as if he hadn't seen it before. "You know as well as I do that to grow food like that would take up all our time and, anyway, we'd never grow enough for export. Personally, I think the whole discussion is a waste of time. Why should we grow crops when the local produce is edible? Think of all the work we'd save ourselves. Who the hell wants to sweat at farming in this climate, anyway?"

"Can we export the local food?"

"I don't know." Gerald didn't look at the commander. "The soft fruits, no. That's a certainty, though we might be able to dry them in the sun and ship them that way. The nuts and other tree fruit, perhaps. It's still going to take a hell of a lot of work though. Our machinery isn't

designed to harvest fruits and nuts. It will have to be done by hand, and we still don't know whether or not the fruit will spoil when exposed to free radiations."

"I see." Williams seemed suddenly very old. "So it all boils down to the fact that we've failed. We can't do the very thing we were sent here to do. As far as Earth is concerned this colony is a dead loss."

"I don't see that," protested the girl. "Earth could still ship out some of the surplus population here. Hyperon has plenty of room for expansion."

"No."

"But . . . ?"

"It wouldn't work, Mary," explained Hermitage, quietly. "For one thing the trip takes too long, and the capacity of the starships is too small. No matter how fast they shipped out people it wouldn't make any difference to the population figures back home. The birth-rate would take care of that; children would be born faster than adults could be

shipped." He sipped at his cooling coffee. "Earth can set up a culture here, in a way that's already been done, but the old dream of using the planets to take care of the surplus has been exploded long ago. Men breed too fast for it ever to work."

"They did it before," she insisted. "What of the pre-space emigrations?"

"Going from one continent to another is a little different from going from one star system to another, and even then your analogy doesn't hold water. In those days there were far fewer people and emigration wasn't the grim necessity that it would be now. The poor emigrated, the unwanted, the young sons who had no hope of inheritance. It wasn't starvation that drove them, but economic pressure. No, Mary, the commander is right. Our job was to grow exportable foods and now it seems we can't do it."

"But we can try." Williams slammed down his empty cup. "First, we will try and elimin-

ate the beetles. At the same time as Gerald is conducting his experiments we shall concentrate on building hydroponic tanks. Fortunately there is plenty of wood on this planet and we have tools and power machines to cut and rip the trees into planks for buildings. We can start with burning a wide clearing, ploughing the soil and running an electric current through the fields. If that doesn't repel the beetles then we'll try something else. Perhaps we could adapt the waste products of the pile to fashion a low-radiation dust which would not harm our seeds, but would kill off the native life. If we fail at that then we can try again. Perhaps we could dust the soil with a six-month dust, kill the native life, plant and harvest a crop, and then redust. I'll have to consult with the atomic engineers about it, but in the meantime we'll concentrate on building the tanks."

"Wait a minute." Gerald carefully set down his un-

tasted coffee and stared at the commander. "Do I get this right? You want to kill the beetles, after all I told you about ruining a planet's ecology. You want to use radi-dust, and you know damn well what that might do to the soil. You want to slash down the trees to build tanks to grow food which we don't really need. Are you insane or just plain stupid?"

"Gerald!"

"Shut up, you uniformed fool! I've stood all I'm going to stand from you and your ridiculous code of blind obedience to outmoded conventions. Know it or not, what you intend doing is to ruin this world. You know that? You're going to kill it just as the rest of your kind killed Earth. Cut down the forests—and let erosion ruin the fields. Spread radi-dust, and make some nice new deserts. Kill the beetles, and set your self up higher than God and ten million years of selective evolution. Well, I won't let you do it. You hear that,

Williams? I won't let you do it!"

"Gerald, you fool!" Hermitage grabbed at the ecologist and slammed him back in his chair. "Calm down, damn you!"

"Let him go." Williams had risen and stood, one hand resting easily on the butt of the pistol in his belt. "It is time this matter was decided once and for all. Like it or not, Gerald, I am the commander here and you will do as I order. Exactly as I order, do you understand that? I've stood more insolence from you than from any other man, but I tried to make allowances for you, find special justification for your arrogance and contempt of duly elected authority. It is our duty to grow food here. It is our duty to help feed the starving billions of Earth. They are your people, Gerald, yours and mine, and we owe it to them to obey our instructions. Perhaps this planet will be ruined. Perhaps we will fail, no matter

what we try, but I don't intend failing until I have made every effort to do what I was selected to do. What if we do ruin the planet? What if we do wreck the ecology? What is that to us? Space is littered with worlds and, if we fail here, it is still no loss."

"You swine!" Gerald struggled against the doctor's grip. "You stinking, selfish, ignorant swine! Touch a single one of those trees and I'll kill you! I swear it!"

"No," said Williams, quietly. "You will not kill me." He looked at the others, Hermitage, still half-sitting-half-leaning against the writhing figure of the ecologist. Mary, standing, pale and silent, against the wall. "You both heard that threat. I, as commander of this settlement, have been threatened with violence by a subordinate. The penalty, as laid down in the manual, is very clear. Punishment up to and including execution, at the discretion of the highest commanding officer. I am he. As

we have no facilities for imprisonment here, and as we haven't the men to spare to stand guard, there is only one thing I can do."

"You're not going to shoot him?" Mary stepped forward, her face very pale in the light of the naked bulb. "Not that!"

"I'm sorry, but you are a witness to his threats. In order to survive at all this settlement must be under a rigid discipline."

"It would be murder," she said. "Murder."

"No. Legal execution."

"But there's no need for it. You could evict him, divorce him from the colony, set him to manual labour, anything. But not death. Not that."

"I have no choice."

"But . . ."

"Stop begging," snapped Gerald. "Can't you see that he's relishing it? Let him kill me if he wants to. He's got a gun and he's dying to use it, and the more you protest the more damn righteous and

self-justified he feels. In a minute he'll say that he doesn't really want to do it. That he has no choice. That I must be made an example of for the common good. You don't stand a chance with his type. He goes by the manual and he's got the entire Service behind him to back him up and accept the responsibility." He made a spitting noise. "The damn hypocrite!"

"There's a man dead out there, Gerald." Williams gestured towards the heavy, humid night. "He died because there were others just like you. Stupid, cocky fools who thought that they knew best. They wouldn't obey orders. They wouldn't accept instructions aimed at their own good. They knew best, and so a man paid for their ignorance with his life. Perhaps your death will serve to shock them into a realisation of just who and what they are. They are soldiers, Gerald, just as you are, just as we all are. Soldiers at war. And, if the enemy we fight is nature

and space and alien worlds, yet we are still soldiers at war. And in war there can be no room for sentiment, individual judgments and personal preferences. And so you must die. Not because of any personal dislike or hate. But because you represent the one thing we cannot tolerate. You represent anarchy." Williams sighed and seemed to sag a little, not looking at the shocked features of the girl, but keeping his eyes steadily on those of the ecologist.

"You will be executed at dawn under the conditions as laid down in the manual."

"No." Hermitage rose from where he had been restraining the now-quiet ecologist. "He will not be executed at all."

"Indeed?"

"Indeed." The doctor sighed as he looked at the commander. "The girl is right. To kill him would be murder—and you know it."

"I am acting as instructed by the manual," said Williams stiffly. "If you object, no

doubt a complaint can be made to the proper quarters."

"Naturally, but as a complaint cannot be made until after the execution, because until there is an execution there is nothing to complain about, it wouldn't do much good. And in any case, you seem to forget that no ship will contact us for another ten years. But never mind that. You will not shoot him because there are specifications laid down to protect him."

"Are there?" Williams smiled, confident of his own knowledge. "Is he insane? Drunk? The victim of hypnosis or post-operation shock? Is he suffering from wounds or battle fatigue? Space fever or radiation sickness? To me he seems perfectly healthy and in his right mind."

"You've left something out," reminded Hermitage, quietly. "What about being a victim of drugs?"

"Inapplicable."

"Is it? When for a whole month now he has been

eating nothing but alien food. Food, the ultimate effect of which we still do not know. Are you going to shoot a man who is acting as your test animal because of something he cannot help?"

"The food?" Williams looked sharply at the doctor. "You think it poisonous?"

"No. But I am showing you why you cannot execute Gerald and still be at peace with your conscience. The decision, if you kill him, will be yours. The manual is quite clear on the subject and the specification fits the case perfectly. I can't prevent your shooting him, but don't for one moment think that you are protected by the manual or by authority. Murder him if you like, but be honest enough to admit the murder."

"I see." Strangely, the commander smiled. "You are right. There is no need for him to die. We must assume that he isn't wholly responsible for his actions and report them accordingly."

"Then you're not going to

execute him?" Mary stepped forward, her cheeks glowing with relief. Williams half-moved towards her, then remembering his dignity, stiffened into an official attitude.

"No. I must ask the doctor to keep him under observation, of course, and it would be better if he did not mix with the others. Perhaps it would be as well if he retired now, Hermitage?"

"Yes." Hermitage jerked his head at the sullen ecologist. "Come on, Gerald. Drink your coffee and let's get to bed."

"I don't want it."

"Not after Mary made it especially for you?" Hermitage pushed the cup a little nearer. "You can't insult her like that drink it down."

"No."

"Drink it!" Hermitage snapped the command, then, as Gerald stared at him, smiled. "I'm tired. Get it down and let's get off to bed."

"I don't know why you're so concerned over it, but if it will make you happy . . ."

He lifted the cup and emptied it in three great swallows. "There! Please may I go now, sir?"

"Of course." Hermitage nodded to the commander, smiled at the girl, and reached out a hand to steady his companion as the ecologist suddenly staggered. "What's the matter?"

"I'm sick," groaned Gerald. "My stomach . . ." He lunged for the door and the sounds of his vomiting echoed clearly through the night.

THE SOFT DIRT YIELDED easily to the sharp blade, and as it was lifted, the tiny bodies of scurrying beetles made a shifting web of colour against the rich blackness.

"There they are," said Gerald, fondly. He threw aside the dirt and prodded at the remains of a buried fruit. "See? Fifteen minutes and it's almost all gone."

"Is that fast?" Hermitage stooped over the shallow pit and watched as Gerald

lifted the fruit and slipped it into a plastic bag.

"Pretty fast. The beetles aren't more than half-an-inch long and the fruit was all of three inches in diameter." He smiled as some of the little insects ran across his hand. "Bold little devils, aren't they?"

"Won't they bite?"

"They haven't yet, and I've given them plenty of opportunity." He pinched one between thumb and forefinger, holding it gently so as not to crush the delicate chitin, and rose with it in his hand. "See? Two well-developed mandibles with serrated edges. Six legs and four antennæ. No wing cases; obviously they are incapable of flight, but surprisingly enough, considering how they live in the darkness, they have well-developed eyes. Egg layers, I assume, though I haven't found a nest yet, and with a remarkable set of instincts." He dropped the insect and watched it bury itself in the loose soil.

"What makes you think that?"

"I've been studying them. As Williams seems determined to carry out his insane plan I thought I'd better know a bit more about them." He looked at the doctor. "Incidentally, thanks for saving my life. I hope the fact that it's taken a week for me to get around to saying it doesn't lessen my gratitude."

"Forget it." Hermitage reached for a nearby fruit and sank his teeth in the succulent pulp. He smiled at Gerald's expression. "I've been eating native produce for a week now—most of us have, but I've kept it from the commander."

"Why? Why eat it I mean. I can understand your keeping secrets from our dictator."

"I have a theory," said Hermitage, slowly, "and if I'm right trouble's due to break at any moment now."

"Good." Gerald made no attempt to hide his satisfaction. "What sort of trouble? Mutiny?"

"Perhaps." Hermitage stared thoughtfully at the half-naked ecologist. "If it came to that who's side would you be on?"

"The other side," said Gerald promptly. "If for no other reason than to stop him wrecking this world."

"He won't spoil Hyperon," promised the doctor with a calm certainty. "But he's got to work it out of his system. I've got high hopes of Mary. I think that girl will be the making of him."

"I'd feel happier if you'd have said 'breaking.' When I think of the way he was going to have me shot . . ."

"He didn't want to execute you, Gerald, but according to his lights he had no choice. You saw how pleased he was when I showed him a way out." Hermitage grunted as he sat down. "Williams is a typical example of the military mind, and as such is very easy to predict. To him everything is black and white. An action must be followed by a reaction. He lives by the manual be-

cause it is his only guide and he knows that, by following it, he can't get into trouble. You had threatened him before witnesses. Unless he took action he would be at fault. When I showed him that he could still permit you to live and at the same time follow the manual, he was almost childishly grateful. Williams isn't a bad man, Gerald; merely one who hasn't yet learned to think straight. He isn't a bit like Lambert, for example."

"Lambert?"

"The commander of the first colonists. I told you that I knew him."

"That's right, I'd forgotten." Gerald sat down beside the doctor and stared thoughtfully at him. "You know, I've got the impression that there's a lot of things you know and which you haven't explained. That footprint for instance. You know as well as I do that no woman ever made that print."

"Of course."

"And it didn't surprise you?"

"Why should it? Even you should be able to deduce who made it and why."

"Who?" Gerald frowned. "There's no one here but us, unless . . ." He stared at the doctor. "The first settlers! Is that it?"

"What else?"

"You've seen them, then? You know where they are?"

"I haven't seen them, but I know where they are. They're in the only place they could be. Here, on Hyperon, where they've been all the time." He smiled at the startled expression on the ecologist's face. "Isn't it obvious? They didn't die or we should have found their bodies, and if they didn't die at the settlement, then why should they have died after they left? As for the footprint, when you have almost five hundred men and women, children are to be expected. I imagine that there must be quite a few children by now. Wouldn't it be logical for

one of them to have crept near the settlement, driven by curiosity, perhaps, or just from a desire to see if he could find any new play-mates?"

"But if they're here why haven't we seen them? Why didn't they answer the radio call from the ship?"

"Perhaps they didn't want to be disturbed."

"No." Gerald shook his head. "No, that isn't logical. After ten years they would have been glad to hear another human voice, learn the news, catch up with events. They would have answered if only to obtain more tools, supplies, things they must need. It just isn't natural that they deliberately hid from the contact vessel."

"You think not?" Hermitage shrugged. "I'm a doctor, Gerald, and in order to heal bodies I've had to learn a little about the workings of the mind. Nothing men do is ever illogical—to them. No matter how insane a man is, his actions and processes will

always be logical—to him. Sometimes I wonder whether or not we haven't reversed the meanings of the words 'sane' and 'insane.' For, when you come to think about it, could anything be more illogical than our own civilisation? I told you that I knew Lambert. He was one of the few men I've ever found cause to admire. He managed to remain an individualist in a society which actively discourages individuality. A reader of poems and old books, an idealist, a dreamer if you like. I found him a fascinating study in psychology, and we spent many hours together discussing everything from philosophy to cybernetics."

"Interesting," said Gerald, absently, "but what has that to do with us?"

"Maybe more than you think." Hermitage raised himself on one elbow and stared at the ecologist. "Knowing the man enabled me to know what he would do under a given set of circumstances. He

arrived here ten years ago with five hundred men and women, and certain specific orders. He couldn't carry out those orders, we know why, and so would feel himself relieved of the obligation to do his original task. What would he do then? What would you do?"

"I'm not sure," said Gerald, thoughtfully. "Not as Williams hopes to do, that's for certain." He shrugged. "There's not much you could do when you come to think of it. Explore, I suppose. Do some scientific investigation. As for the rest, well, take things easy, enjoy yourself, kill time until the ship came to take you off."

"Imagine yourself in that position, Gerald. You are in command of five hundred people, who all their lives have never known anything but work. Hard work. Relentless. With no time for leisure or creative enterprise. All their lives they have been bounded by the iron walls of convention and tradition. They

owned nothing and never would own even the dirt they would be buried in. They worked in order to live and they could never hope for anything else. Then they come here, still prepared and expecting to work, ready and willing to turn themselves into high-production farmers. Then they find they can't do it. Then they find that, for the first time in their lives, they can eat and sleep, walk and play, without the spectre of poverty or imprisonment hovering over them. They would have time to waste, time to burn, time to do whatever they wanted to do within their limits. What would you do if you were in command?"

"I'm beginning to see what you mean," said Gerald, thoughtfully. "It's a lot of people and you just couldn't stop them if they wanted to go. Anyway, there'd be no point in preventing them once the original plan had flopped." He looked at Hermitage. "But that doesn't explain why they

didn't answer the contact ship."

"I think it does." The doctor gestured towards the fruit-laden bushes and the nut-heavy trees. "Look at it. Food for the mere effort of reaching out for it. A climate which makes the wearing of clothes a ludicrous anachronism. No hostile animals. No harsh seasons. No necessity even to build houses. What would you call it?"

"Paradise."

"Yes. Here men can walk without fear. Here, for the first time in their lives, they could experience freedom, true freedom, not the conditional meanings usually given to the word. They would have an entire planet to wander in and there could be no wars, no enemies, no dislikes. If a man offended you, then you could walk away from him. There would be no need ever to see another human face unless you so wished. Freedom, Gerald. Pure, perfect freedom, and once experienced do you think that anyone would ever

relinquish it of his own free will?"

"Anarchism," said the ecologist, slowly. "Decadence. A returning to the primitive and a falling into savagery."

"What makes you think that?"

"What else could it be? We're civilised only because we work at it. Men are basically animals, Hermitage, you know that. Take away their barriers and down they go."

"Down?" The doctor shrugged. "Or up? Is it bad to wander the fields and feel the warm sun and the soft air against your naked skin? Is it bad to feast in convivial company, get drunk, even, sing songs and rid yourself of the pressing urgency to be up and doing? And doing what? Making money? Why, when you could have everything for the effort of taking it? For all a man really needs is food and shelter; supply those and then he can give full rein to his creative instincts. No, Gerald, they wouldn't have

sunk into degenerate savages. For they were civilised to begin with. They have a language which, in itself, is one of the finest tools ever produced. They have intelligence and the keenly inquisitive minds of the intelligent. At first, perhaps, they would have yielded to the lotus, but then, after the novelty had died, they would be itching to do things with their hands again. But this time they would do as they wished and not as they were ordered. Art, carving, the manipulative sciences. They had doctors and technicians; and men love to teach what they know. And there would be children, lots of children, and is there any greater enjoyment than watching your young grow?"

"I wouldn't know, I've never had any." Gerald stared at the surrounding trees. "So you've known all the time what must have happened."

"Not all the time, no, but now I am sure."

"What made you sure? I've

been with you all the time and I haven't seen anything. In any case the whole thing is pure surmise. What about the records?"

"Would any commander make such scanty notations? I think we'll find that the original records were destroyed and the book we found deliberately left to misguide. After all, what does it tell us? Some men died. Merely that and nothing more. Not a word about the inability to grow crops. Nothing about the edibility of the native produce. Not even a hint as to why they went. If records were made they must have been far more comprehensive than that."

"A joke?" Gerald looked his disgust. "A hell of a way to have fun. Anyway, what made you so sure?"

"You did."

"I did?" The ecologist sat up and stared at the doctor. "What did I do?"

"You were sick," said Hermitage, seriously, then rose

as a man came crashing through the bushes towards them.

"Doctor?"

"Here."

"The commander wants you to return at once. There's trouble, bad trouble." The man wiped sweat from his face and his eyes reflected his fear. "Hurry."

"Illness?" Hermitage rose quickly to his feet. "Is it sickness?"

"Yes. Hurry!"

THE MAN WAS DYING. Hermitage could see that at a glance without the necessity of making a closer examination, but he made it just the same, carefully touching the angry red blotches and pursing his lips at the colouration of the eyes. Williams stood beside him, his attention to duty over-riding his instinctive fear of plague, and gestured the doctor outside after the examination.

"Will he live?"

"No."

"Is it catching?"

"I don't think so. How did it happen?"

"That's the mysterious thing about it. He was all right this morning, but just after lunch he collapsed. Those red patches seemed to appear within seconds." Williams swallowed. "Is it plague?"

"No."

"What is it then? Don't just keep saying 'no.'. What do you advise?"

"Lift your restriction on the eating of native produce. Serve it at the next meal and see that every man and woman has a fair share."

"What!" Anger thinned the commander's lips. "Must I remind you that this is hardly the time for joking? There's a man dying in there and there may be others. For all you know the native food may be to blame, and yet you ask me to order everyone to eat it."

"I'm not joking, Williams. There's a good reason for my suggestions, and as for the

food being dangerous, that's nonsense. Gerald has eaten nothing else for weeks now, and I've lived on it for a week myself. It isn't the fruit which is causing the illness, it is lack of it."

"How do you mean?"

"You don't know much about ecology, do you, commander? It goes a little deeper than just the balance between flora and fauna. It applies to everything on the planet and you can't ignore it. For a long time now we've known that, to remain healthy, a man must eat the food of the region he is in. The old travellers knew that. Explorers ate seal meat and blubber as far as their stomachs could stand it while venturing to the poles. Others made a point of changing their drinking habits to conform to the local customs. Canned food brought a flock of stomach upsets in its wake, not because it was canned so much as because it was foreign. Don't misunderstand me, commander. I'm not

suggesting that men died because they ate tinned beef instead of the local food, but I am saying that they were not perfectly healthy. Not that it mattered then; few people really were, and the human body is pretty tough anyway. But now we are on a new world. If it was desirable to eat varying foods on our own planet, how much more desirable must it be to eat local food in differing star systems?"

"If I do as you suggest, will that save them?"

"No, but it will prevent others from dying the same way." Hermitage shrugged. "Some will die, of course. Not everyone can adapt to a new world, but we know that the first colonists managed to halt their deaths and we know, too, that terrestrial food is unacceptable to a metabolism which has become accustomed to native produce."

"So?" Williams looked his disbelief. "How do we know that?"

"Gerald was sick after

drinking coffee. I made him swallow it because I was curious to see if my theory was correct. It was. His stomach rejected the caffeine and it made him ill. The assumption is, then, we can eat the fruits and nuts without harm, but to continue with our own food is to clash with the ecology." He shrugged. "In any case we have no choice. The sooner we all become acclimatized the better."

"I don't see that. We have plenty of food and can easily last out ten years on rations. If what you say is true, then that means that if we eat the fruits we won't be able to revert back to a normal diet. I don't feel justified in giving the order which, in effect, would doom all these people to exile."

"Exile?" Hermitage smiled. "Is that what you call it?" He became serious. "We could revert back to our accustomed diet if we had to, but why should we? Contact won't be made again for ten years,

and, when they receive no answer, they will write off Hyperon as a 'bad' planet. I..."

"Wait a minute!" Williams' fingers dug into the doctor's arm with a grip which made the older man wince. "What do you mean, 'when they receive no answer?' Why shouldn't they?"

"Did we?" Hermitage jerked his arm free and stared at the commander. "Do you think that we are going to be different from the first colonists? Do you honestly believe that these people are going to be content to wait here for ten years without wanting to eat the native produce? Ten years, Williams. That's a long time."

"I have planned for it. The tanks, the experiments; we shall have plenty to keep us busy."

"And for what? To grow food we can't even eat? To build tanks? Hydroponic tanks when the soil is as fertile as we could wish? Is that what you call construc-

tive effort?" Hermitage shook his head. "No, Williams. You know that you'll never be able to retain control over the colonists that long. Discipline is slackening already, and how long do you think you can make them work at useless tasks? If they had a constructive job to do things would be different, but you're making work and they know it. They'll obey you for a while; the dead weight of tradition, the sheer inertia of the past years will see to that, and then they'll begin to question, to dodge, to disobey. One day you'll give a command and it will be ignored. Then you will have to enforce it or lose your position. You might be lucky the first time. You might be able to threaten them into obedience, but there'll be a second episode, a third, and then, one day, you'll find yourself alone." He smiled at the serious face of the young man. "Forget it, Williams. There's nothing you can do to stop it."

"I refuse to desert, and I

refuse to let any of my command desert." Unconsciously his hand fell to his holstered weapon. "I have the law to back me up."

"You have nothing but the gun at your belt and the courage to use it or not, as you decide fit. But one thing I'll promise you. If you ever decide to use it, then keep on using it, because if you don't then you'll be the next to die."

"Shoot *me*? Their commander?" Shocked horror was in Williams' voice, and Hermitage could understand his incredulity. Men just didn't mutiny. Officers just weren't shot. Men just didn't refuse to obey. Hermitage rested his hand on the young man's shoulder.

"Look, son," he said, quietly. "I'm a little older than you in years, and a damn sight more in experience. I know that this is hard for you to take, but look at it sensibly. Gerald should have warned you what to expect. He hates you, not as a man, but for

what you represent. He doesn't know that himself as yet, but he will. I'll make sure that he does. He hates you because you represent the very thing he's been trying to escape all his life. He hates you because, to him, you are the overcrowded cities, the poverty, the worry, the jobs he doesn't want to do and the nastiness he wants to avoid. You are civilisation. You are the enemy."

"Nonsense!"

"Is it? Why do you think men leave home? It isn't to open new frontiers but to escape from what they hate. That's what we're doing, all of us. That's why we volunteered for space; not to spread the culture of man but to get away from the insane rat-race back home. All of us carry that dream, and all of us hope that, somewhere, someday, we shall find paradise." He gestured towards the sky, the forest, the tall shapes of the trees. "And here we have found it. Here, on Hyperon, we have found the very thing

for which men have been searching from the beginning of time. A place to rest. A place of warm comfort and relaxation. And, now that we've found it, do you think that we could ever give it up?"

"I don't believe it," said Williams, slowly, and yet deep within him something admitted the truth of what Hermitage had said. He *had* volunteered for the Academy to escape the harshness of the orphanage. He *had* volunteered for space to get away from the sneers of his fellow officers, the unspoken gibes and cold indifference of those to whom he was an outcast. And he had even volunteered to land on Hyperon against all sense and logic, to escape being sent back home to Earth. And now?

"What of the sick?" he said, quietly. "The others?"

"I'll take care of them."

"And Earth?"

"Forget Earth. Hyperon is our world now. This is the haven we have subconsciously

craved all our lives, and now that we've found it we can never leave. It's ours, Williams. All ours for us and our children. Earth is a bad dream, a thing of the past, a nightmare we can all forget. This is paradise and here we stay."

"Perhaps." Williams drew a deep breath of the scented air, and Hermitage smiled as he stared at the perplexed face of the young commander.

"Don't worry about it now; you'll understand soon enough, but here's some free advice. Forget that you're the commander and set about making some friends. Know what I mean?"

"I think so." Williams smiled as he stepped forward to where a woman waited with the age-old understanding of her sex and smiled down into her eyes. "Hello, Mary."

"Hello, Bill."

It was all, but it was enough. Williams felt an unfamiliar comfort as he walked across the clearing, the girl at his side. Later he would have to think about altering the records, uncouple the emergency radio tape and dampen the pile, but there was plenty of time for that.

Now he was eager to explore paradise.

Do you know your Moon?

- (1) How big is the Moon in diameter?
- (2) How long does it take to go round the Earth?
- (3) How fast does it travel?
- (4) What is its density?
- (5) How heavy is it compared with Earth?
- (6) What is its surface gravity?

Answers on page 126

Photography in the Future

by Joy K. Goodwin

TO-DAY, a box camera with a set focus, stop and exposure is the type used by the majority of camera owners. The more fancy camera with adjustable focus, stop and exposure is regarded by many as prohibitively expensive. With possible advances in the manufacture of cheaper materials and more efficient techniques, it is highly probably that many box-camera owners will change over to the use of the more elaborate instruments, since a prevalent belief—though not completely true—is that the “better the camera, the better the pictures.”

However, the amount of technological development that must take place before this type of camera reaches a considerably lower price level will probably take many years—unless, of course, some benevolent government

generously dispenses with purchase tax!

The most likely change, and one that perhaps will be forced upon camera manufacturers before long, is the replacement of steel for body-work. With a possible shortage of steel, it is natural to conclude that its use will only be permitted for the most essential work, and that elsewhere it will be replaced by other more abundant substances. Few cameras are made of plastic nowadays, and these are mainly of the box type. But there seems no really good reason why metal bodies could not be replaced by plastic in the precision camera.

Polythene bearings and sprockets are now quite common in other fields, and this versatile plastic material could probably take the place of such parts in present-day

cameras, especially where micrometric accuracy is not essential. Plastic cassettes are already in current use, and it is likely that the metal cassette will soon be a museum piece.

THE LENS

The lens, however, is quite another matter; it is the most important and most expensive part of the camera. While corneal lenses are now made in plastic, it is extremely doubtful whether current techniques could be used to make successful camera lenses in plastic. There are two difficulties to overcome with plastics—the softness, on which every scratch will show; and the expansion rate, which is much greater than that of glass.

Where lens components have to be cemented together (a condition met with in any good lens) the different characteristics of each piece of glass enable the technicians almost to cancel out the expansion, or, if this is not possible, to place the expansion where it will least affect the final result. The accuracy required of a precision lens therefore

eliminates the use of plastic—until new varieties are developed that will give an expansion rate that approximates, or betters, that of glass. The fact that plastic can be cast time after time with the same characteristics will, of course, eliminate much of the work of constructing a lens once the desired hardness and expansion rate is discovered.

In passing it might be noted that with corneal lenses it has taken only thirty years to go from bulky glass lenses to miniature plastic ones (the micro-lens), and with the amount of research into matters of this kind that is going on, it is possible that precision plastic lenses will be a reality within the *next* thirty years.

Plastics, of course, will not be restricted only to the camera. While films already have a celluloid base, emulsions for printing are on a paper base. It is possible that fine sheets of plastic may replace paper as a base for prints where long life is required. With the probability that colour prints — as opposed to colour trans-

parencies—will become more popular as their colour rendering improves and their cost is reduced, a plastic base, with its longer life, will be advantageous. During the last couple of years, the improvement in colour rendering—especially in the red range—has been very noticeable, and several firms are developing various techniques in the desire to pip each other at the post with a much cheaper colour process than is presently possible.

Eventually, the monochrome print may become as obsolete as the daguerro-type, while the colour print—and perhaps even our authors' favourite tri-di full-colour photograph—holds full sway.

Meanwhile, the most probable development in the monochrome field will be an extension of the Polaroid-Land method by which the print can be taken direct from the camera about a minute after the button is pressed. In this case, the main drawback—particularly from the keen photographer's viewpoint—is the lack of a negative, so that enlargements cannot be

made unless the finished print is used as a base and re-photographed to give a negative. For the person who just wants a picture of Auntie having a nap in a deckchair to put in an album, this type of camera is ideal. While it is extremely popular in the United States, it has yet hardly made its presence felt in this country, possibly because of dollar restrictions.

FORTUNE WAITING

The most interesting possible development—and one that many photographers would dearly like to see—is the elimination of silver as an emulsion base. Silver is expensive, and could anyone discover some cheap photosensitive material which could be made into an emulsion, he would make his name stand level with Fox Talbot, and probably make a fortune into the bargain. It is possible to reclaim silver grains, but, for the amateur photographer, the processing of stock solutions is more trouble than it is worth.

After the elimination of silver, the next most impor-

tant point would be to perfect an extremely fast film that will not show grain (the effect that a photograph is covered with grit or dust) when enlarged. The faster the film speed, of course, the more probable the appearance of grain. Photographers like fast film, since they can then stop down sufficiently to give them much greater depths of sharpness. As the search for faster films goes on, so research into the elimination of grain continues. In this context should be considered the use of developers which, to a large extent, determine how much grain will be present. There are, on the market, several developers (such as Capitol, or Promicrol) which permit a certain amount of under-exposure of the film—thereby reducing the risk of grain—which is compensated in the development.

One possible way of eliminating grain, and, perhaps, giving all the speed necessary, would be the recording on wire of the picture, by scanning it electrically. Experiments are being made with the magnetic recording

of television programmes, and this opens up large fields of possibility. If a TV programme can be recorded on wire by scanning, there is no reason why it should not be possible to apply this method to the camera world. The main difficulty will be the size of the camera required, but, with the use of printed electronic circuits and transistors—already both are in fairly common use—that problem can be overcome. One of the advantages of this method would be that enlargement would simply depend upon the playback of the wire at varying distances.

Further experiments are also being conducted into xerography in which an electrically charged plate is exposed as for a normal plate, when its charge is dissipated according to the degree of light that falls upon it. A similarly charged powder is then dusted over the plate and, since like charge repels like, the powder sticks in some parts and is rejected from others. The powder can then be transferred to paper

and fixed by a resin, and the plate used again and again. This is a method of photography finding favour in the surgical world at the present because of the speed with which a photograph can be completed—a minute in comparison with the four minutes required for an ordinary X-ray photograph.

It is possible that either xerography or the scanning method will completely oust the normal type of photography before the end of the century. While this will probably be no skin off the nose of monochrome photography the difficulty of colour photography will still have to be solved. Perhaps, with the scanning method, it will be possible to have three wires, one to record each of the primaries—red, blue and yellow—at the same instant, and then, by playing each back in perfect register, obtain a full colour photograph. Another variation might be to have modulation of each colour frequency on the wire—the difficulty here would probably be to obtain a base that has inherent in it all possible

colours, only awaiting the impingement of its own frequency to be brought forth.

HIGH SPEED WORK

America has now developed at the Los Alamos Laboratory a camera able to take a few photographs at a speed of *three and a half million frames per second*. No shutter operates between frames, but at the end of each period of photographing, a small piece of plate glass is shattered by the shock wave from a high explosive detonator, becomes opaque and effectively closes the filming aperture with a few microseconds. At Monte Bello a special camera was used to record the progress of the atomic explosion in 1952. This is stated to be capable of taking one hundred pictures the exposure time for each picture being about one ten-millionth of a second. These two cameras will have many applications in industrial research alone.

While high-speed cameras have their applications, their most severe limitation is that only a few frames can be run off at a time. A long piece of

film is wasted in working up to speed and in slowing down. Admittedly the cost of this wasted film is probably offset by the usefulness of the film obtained, but so wasteful a method and one which entails the transporting of large drums of film is not liable to find favour in say a spaceship, where every ounce of weight will have to be eliminated because of the fuel required to raise it.

Now having found our faster methods of photography, our less grainy prints, what are the benefits we hope to receive from them? To the sf fan, the idea of astronomical photography immediately takes precedence. The high speed camera will be useless here, although the films with less grain and more speed will, perhaps, show whether the *canali* on Mars are truly canals, or only eyewash. Look at any photograph of Mars today, and it is easy to see that the degree of enlargement shows the grain so badly that the photograph is like a badly blurred pre-war newspaper halftone print. Is it any wonder then that fine details,

such as the canals, are argued over continually?

A further aid in astronomical photography is infra-red photography. With its use, stars which are invisible through the haze of nebulae can be detected, and photographed. Infra-red photography has many other uses. Survey photographs show amazing details, since all haze is cut out, although it is not possible to benefit from the use of infra-red in fog. In the technological field, infra-red is used for the photography of hot objects, while its use will also detect the use of camouflage, and thence is used by Scotland Yard for the detection of forgeries. In exploring new worlds, archæological remains can be detected more easily by its use, and with it, it is even possible to differentiate between various species of plants. This method proved successful in cornering evaders of the tax on orange orchards in California.

While infra-red photography has so many applications, ultra-violet has considerable limitations, since its complete range—from 4,000

A.U. down to 120 A.U.—is not transmitted by optical glass. Quartz will permit the transmission down to 1,600 A.U., but even this is not perfect. Its main use is in the detection of forgeries, whether written or painted, repairs to documents and the dating of documents, by photographing the fluorescence of the material upon which the ultraviolet light impinges.

In other fields such as microphotography (the examination of miniature photographs by microscope) reduction of grain will permit the use of even smaller films. In this instance, microfilms are going to be a boon for recording purposes in the British Museum (which has recently had to cut down the number of books it accepts, due to space difficulties) and the American Cellar Reserve of the Library of Congress. The smaller these films can be made, the more records can be kept in the storage space available.

In all scientific researches, industrial photography, mapping photography, and all instances where grain is one of the worst bugbears in enlargement, these films will bring joy to their operators. To amateur photographers, the possibility of enlargements of 20 in. by 16 in. with absolutely no grain will be the fulfilment of all their present dreams. To the ordinary person, the man in the street, it will mean nothing directly, although scientific advances with the aid of these developments will probably benefit him indirectly.

One final suggestion—stereoscopic photographs will probably not widen their field while it is necessary to use spectacles of one form or another. The effort of taking out a pair of spectacles every time a person wants to look at an advertisement or a picture will probably be more than the general public will stand. Until the tri-di of our stories is evolved, stereophotography will be a rare thing.

It had to be done just that way. But poor Munson hadn't reckoned on starting the——

CLEANSING FIRES

by DAN MORGAN

ROG MUNSON STOOD FOR a moment in the island of light that spilled from the open port of the empty scout ship. He watched as the door swung smoothly and closed with a light click. The ship lifted and hovered for a moment, its stubby, dart-like shape limned by the violet glow of its damped drive. With a rush of displaced air it homed towards the parent ship in orbit five hundred miles out in space.

Munson felt suddenly alone. He shivered as the warm night breeze of Manyh brushed past his features and wrapped the barbaric cloak closer round his stocky figure.

"Trying to wish it back, son?" said a high-pitched, nasal voice, using the Manyhian language. "Don't just stand there—I'm in a hurry."

Munson strained his eyes to pierce the blackness of the alien night. He could just distinguish the outline of a man and two large animals about ten yards away.

"Rodell?" he said, walking towards the group.

"Rodell Ba, hereabouts," replied the other. "What kind of a training do they give at Agency Training College these days?"

Munson winced at the thrust. "Sorry—I thought we were alone."

"Does that make any difference?" said Rodell.

One of Manyh's four moons appeared over the horizon, bathing the alien landscape in a bilious glow. The two men stared at each other for a moment in silence. Clark Rodell; veteran of the Extra Solar Relations Agency, lean faced and sharp featured, with a bush of greyish, wavy hair. Rog Munson; relief Agent, round faced with black hair and soft dark eyes.

"Did they teach you to ride a horse at A.T.C.?" asked Rodell.

Munson felt a surge of annoyance at the patronising tone of the question. Hell—the man knew he had to be relieved some time. Why try to make things more difficult for his successor?

"Yes," he said, biting back a sarcastic rejoinder.

"Right, you take this brute then." Rodell handed over the reins of one of the animals. "They've got mouths like iron, but if you know how to handle them they'll match up to anything Sol has produced." He placed a foot in the stirrup and vaulted astride the animal. Munson followed suit.

"Your field training will start in earnest right away," said Rodell, as they trotted along. "We are on our way to attend the Khuru's midsummer banquet—so watch your step. After twenty-five years of reasonably comfortable living on this lump of cosmic mud I'd hate you to get my throat cut during the last six months. A certain amount of awkwardness will be excused. I've prepared the ground by telling them that you are a kinsman from the distant and barbaric north—but don't rely on that too much, and remember that the Manyhian culture is based on the ritualistic observance of its own archaic conventions."

Munson chewed his lip. He had hoped for a few quiet days in which to accustom himself to the alien civilisation; a chance to test out at leisure the text-book background with which he had been

equipped at A.T.C. The prospect of plunging straight into the social whirl of Manyh aggravated his initial feeling of uncertainty. Surely Rodell could have planned things better than this?

Despite the fact that Rodell was his only remaining link with Earth, Munson found himself looking forward to the time when he would be the sole ESRA agent on the planet. Manyh was one of the many thousands of Earth-type worlds bearing humanoid life which the Interstellar Exploration Corps had found in their sweeps across the galaxy. In common with most of these planets the culture and technology of the Manyhian civilisation lagged several thousand years behind that of Earth.

When the first few of these backward planets were discovered an enlightened committee of the Solar Federation conceived the Extra Solar Relations Agency. The function of ESRA was to provide undercover agents who would keep a brotherly eye on the progress of the backward planets towards higher civilisation, and give an occasional nudge in the shape of new ideas when a race was headed down a blind alley. As the number of known earth-type

planets increased the work of ESRA grew correspondingly, and reactionary groups in the Federation began to agitate about "The Earthman's Burden." With some validity they felt that the growing colossus ESRA should be made to pay off in some more material respect than the mere gathering of anthropological data.

The two Earthmen rode through the gates of the city and along cobbled streets. Munson eyed the miserable hovels on either side of them. The faces that stared back at him out of dimly lit, unglazed windows were dull and unintelligent. He wrinkled his nose as evidence of the primitive sanitary arrangements of the city reached his nostrils.

Rounding a corner abruptly they entered a large square, in the centre of which stood an enormous, magnificently decorated building. Sheathed in what appeared to be beaten gold and encrusted with coloured stones, the palace shone in the light of hundreds of torches. Munson exhaled sharply.

"Quite a surprise after the shacks of the working class, eh?" said Rodell.

Munson's thoughts drifted back to the Earth he had left two months before—a city

world, where all men were equal. Despite his training he had found it difficult to imagine a society in which the levelling democratic principle did not exist.

"How can the people tolerate such living conditions in the face of this?" His brown eyes were wide.

Rodell's lean face broke into a wolfish grin. "Tolerate? You've got the wrong idea, son." He waved an arm in the direction of the palace. "This is the way of life on Manyh. There you have the rulers—the lords who live on the fat of the land, and behind us the people who are less than the dust. The many work to provide for the few in accordance with age-old customs. Should a worker question the fairness of the system his own companions would tear him limb from limb for uttering such blasphemy.

"Way back in the mists of time the Khurus were the keepers of the communal food store—a type of village quartermaster. Over the centuries the post became magnified in importance and surrounded by a carefully nurtured brand of religious mysticism whose purpose was to perpetuate the rule of the Khurus. It achieves this by the worship of custom

and the concept of unchangeability, the symbol of which is the palace of the Khurus, which has dominated the city for over five thousand years. The system works, providing a social stability that many allegedly more civilised worlds would envy."

Munson realised with horror that Rodell was actually enthusiastic about the barbaric social system of Manyh. Twenty-five years is a long time to spend alone on an alien planet, he thought.

Further discussion was rendered impossible as they reached the front of the palace. Two brutal looking guards rushed forward and took charge of their mounts as they alighted. Munson followed the cloaked figure of Rodell up the steps of the building, his stomach muscles a hard knot of apprehension.

A labyrinth of gleaming corridors with armed guards posted at regular intervals ended finally at the entrance of a large hall filled with richly clad Manyhians. Without hesitation Rodell strode down the centre aisle towards the golden throne that dominated the room. The Khuru of Manyh, an obese giant, naked but for a golden harness, observed the approaching Earth-

men in silence. In his right hand he held a shining metal object about nine inches long, which Munson supposed to be some symbol of office.

About ten feet away from the throne Rodell halted and bowed reverently. Munson followed his example.

"Greetings, great Khuru..." Munson listened with growing impatience as Rodell's nasal voice droned on through a flowery speech of introduction. He took the opportunity to glance covertly at the crowd of aliens. Apart from the fact that their eyes drooped downwards at the outer corners, giving their faces a curiously sleepy appearance, their resemblance to Earthmen was striking.

Rodell completed his speech. The Khuru rose and walked ponderously towards them. Munson moved forward at a gesture from Rodell—and stopped in confusion as he realised the nature of the object in the alien ruler's hand.

"Welcome, Munson Ba, kinsman of our servant Rodell Ba. You come amongst us at a happy time. Tonight there will be great feasting and entertainment," said the Khuru. He touched Munson's shoulder lightly in a gesture of friendship with the butt of the

shining metal object—an Earth-made Gormesh Blaster.

Munson intoned his acknowledgments automatically, his mind preoccupied with the flagrant breach of the ESRA code which Rodell had committed in allowing the alien savage to gain possession of an immensely powerful Earth weapon.

The ceremony completed, the Khuru led a procession of his guests into another hall, in the centre of which was a low table heaped with decoratively prepared food and surrounded by divans. Rodell and Munson, as honoured guests, were placed on either side of the Khuru. The banquet commenced after a ceremonial blessing of the food. Remembering his training, Munson managed to eat the required amount of the seemingly endless procession of dishes, only gagging at the final one, which was composed of some form of roast meat covered in a revoltingly perfumed sauce.

When the meal was over a number of guards removed the table and pushed the divans back towards the walls, leaving a rectangle of clear floor in readiness for the entertainment.

Two Manyhians of the working class entered, each

carrying a broad sword and dagger. They walked with measured tread up to the dais upon which the Khuru was seated and bowed—then turned and proceeded to hack at each other in bloody combat. Munson watched the barbaric display with rising nausea. He glanced across at Rodell and noted, to his disgust, that the man seemed to be sharing the Manyhians' silent enjoyment of the gladiators' performance.

The centre of the floor rapidly became stained with the blood that oozed from the gashes on the bodies of the combatants. Soon one of them lost his footing on the slippery surface and crashed to the floor. The other threw aside his dagger and, wielding his broad sword in both hands, severed the head of his victim with one mighty stroke.

Panting with exhaustion, his body shining with sweat and blood, the victor turned towards the Khuru and raised his sword in salute. The Khuru levelled the Gormesh Blaster, intoned a brief ritual and pressed the trigger. Only as the charred body of the gladiator fell to the floor did the Manyhians break their silence, giving a great shout of approval for the ceremonious

demonstration of their ruler's omnipotence.

The guards cleared away the debris and another pair of combatants appeared. The cycle was repeated again and again, always with the same climax, until, apparently sated with blood, the Khuru gave the signal that the entertainment was at an end.

Rodell and Munson walked silently through the grounds of the palace to the house which the ESRA agent occupied in his position as a member of the ruling class. Once inside, Munson turned on the older man, his round face livid.

"What sort of a man are you, Rodell? I heard rumours at A.T.C. that after a long time on a backward planet some agents get too used to playing God, but this . . . You could have used your knowledge to free Manyh from this sadistic tyranny, but you have only helped to perpetuate it. I may be a kid fresh out of Training College, but I know that to introduce extra-cultural weapons like the Gormesh on a planet like this is directly contrary to the principles of ESRA. I shall consider it my duty to report the matter to Headquarters."

Rodell leaned nonchalantly against the doorpost, one

corner of his thin mouth twisted in a sneer.

"Come off it, laddie. You don't realise how far away from Earth Manyh is—in time as well as space. I opened up this planet twenty-five years ago with no other assets than my brain and that Gormesh. I was pretty young then, about your age and full of ideas about my sacred mission. But ESRA was new in those days and we had to play things off the cuff.

"Think about it—what would you have done in my position? Maybe you would have tried to blast your way to the top of Manyhian society and made yourself Khuru. You would be in a position to change things then, but you would be breaking ESRA regulations. Maybe your humble, milk-white soul would have demanded that you discard your weapon. That way you would have been killed—or become one of the working class, which amounts to practically the same thing in effect. That wouldn't have been so good either, because you would be failing in your mission as an agent.

"I took the only other alternative I could think of at the time. When I was taken

before the Khuru I managed to convince him that I was an emissary from the mysterious lands of the north. I told him that I had been instructed to deliver into his keeping the mighty thunder weapon of the Northern Gods and handed over the blaster. The gamble paid off—instead of killing me on the spot he was so delighted with the weapon that he installed me as an honoured member of his court.” Rodell’s eyes narrowed. “Hell! Why should I bother to justify my actions to you?” He turned abruptly and walked through into the next room.

Munson lay back on the comfortable divan. Despite the undoubted survival value of Rodell’s actions, it seemed to him that the veteran agent had failed in his mission. An agent’s first consideration should be for the work of ESRA, not his own comfort. But the man had a savage streak which enabled him to rationalise the wrong course of action and there was nothing to be gained by arguing with him. The Psyche department of ESRA applied more stringent tests to prospective agents now than it had in those far off pioneer days, and Munson doubted whether Rodell would have even been

considered for the Manyhian mission at the present time.

He wondered why H.Q. had not given him a more detailed account of the situation—unless Rodell had been deliberately withholding information in his reports . . . A few minutes’ conversation on the sub-etheric communicator would suffice to check on this, but Rodell would retain control of the instrument until he officially handed over the Manyhian Agency.

Until that time any message that Munson wished to send to H.Q. must pass through Rodell’s hands. The communicators supplied to ESRA agents were specially designed to ensure that they would be useless in the hands of any other person, attuned as they were to the cortical energy pattern of the agent himself. Munson would only be able to use the communicator when Rodell had operated the cancelling circuit and his own pattern had been recorded.

As he dropped off to sleep it occurred to Munson that, should he not survive the six months probationary period, Rodell would remain in charge on Manyh indefinitely . . .

MUNSON AWOKE FROM A troubled sleep. The golden morning sunlight of Manyh was pouring into the room through the open door. He rose from the divan and walked through to Rodell's room. It was empty. He examined the others one by one and finally realised that he was alone in the house. He washed and shaved in the primitive bathroom and ate a light breakfast of fruit which he found in the kitchen.

After a moment of indecision he donned his cloak and walked swiftly out into the grounds of the palace. Turning his back on the magnificent building, he headed in the direction of a high wall which was visible above the trees about half a mile away. On his way he encountered several noblemen, apparently out for their morning stroll. They greeted him cordially, but fortunately showed no inclination to linger.

Munson reached the wall and followed its curve until he reached a gate. The guard on duty sprang to a salute as he passed through into the cobbled streets of the city.

He found himself in an open-air market. The jostling crowd of Manyhian workers made way for him deferen-

tially after a glance at his nobleman's attire. Drably clothed, sleepy-faced Manyhians offered for sale insect smothered meat and wizened fruits. Munson recalled the sumptuous banquet of the previous night.

He approached a large Manyhian who stood by a stall laden with blue tinged meat. The butcher laid down his bloodstained cleaver and bowed.

"Greetings, Lord. Can the unworthy Chonprey be of service to the Khuru's chosen?"

"Continue with your work, Chonprey," said Munson. "I merely wish to speak to you."

The butcher hesitated for a moment, his eyes widening. Munson wondered if his breach of custom in addressing a common labourer in this manner was entirely wise, but it was a chance he had to take.

"As the Lord wishes," said Chonprey, picking up a shining knife and beginning to slice a hunk of fly-blown meat.

"Tell me, Chonprey, what happens to the choicest cuts of your beef?" said Munson, shrewdly.

The butcher's left eyebrow flickered momentarily. He glanced at Munson warily.

"The Lord is mocking his

poor servant . . . As he well knows, the best that Manyh has to offer is by ancient custom the property of the Khuru and his court."

"Why should it be thus?" said Munson. He was conscious that some of the crowd were gathering round the stall at a respectful distance. "Why should *you* not enjoy the prime fruits of your labours?"

The brawny hand holding the knife developed a slight tremor. The butcher suspected that he was being led towards the utterance of treasonable words.

"It is the custom, Lord. I do not question the time-honoured ways of our people." A bead of perspiration formed on the broad forehead and rolled down his craggy features. "Why does your highness persecute a poor man? Take what you will and leave me in peace, I beg you."

"But why, Chonprey?" continued Munson, remorselessly. "Are not the Khuru and his nobles men like yourself? By what right do they take the food from the mouths of your wife and children? You are a powerful man with strong arms, but you talk with the tongue of a woman. It is not enough to say! 'It has always been so.'"

The face of the butcher was a rigid mask of despair. He cleaned the knife thoroughly on a piece of cloth. Then, taking it by the shining blade, offered it, haft foremost, to Munson in a symbolic gesture.

"Take what you will, Lord," he said, pointing with his free hand to his bared chest.

A deep-throated murmur swept through the crowd as they surged in closer. A wave of fear coursed through Munson as he recalled Rodell's words; '. . . his own companions would tear him limb from limb for such blasphemy . . .'

He realised that he only remained alive by virtue of the symbolism which surrounded his noble's cloak. He gazed at the knife. One wrong move and his life would be forfeit, of that he was certain. He had no quarrel with this man, or heart to take his life in cold blood. The sunlit air shimmered with tension . . .

"Make way there!" shouted a nasal voice. Munson turned; the spell was broken. A tall thin figure in noble's robes walked haughtily through the crowd, who parted like sheep before a wolf.

"Come with me, you darned fool," snarled Rodell in Interlang. He turned and addressed

the crowd in Manyhian. "Go about your business, in the name of the Khuru!"

The crowd hesitated for a moment, then melted away like summer snow. This was the treatment they understood.

Chonprey the butcher gazed curiously at the backs of the departing noblemen. The knife fell to the cobblestones with a ringing crash.

"Thanks for getting me out of a ticklish situation," said Munson, as they walked through the gate and back into the quiet of the palace grounds.

Rodell glanced at him thinly. "You don't imagine I did it out of any concern for your lily-white hide, do you? I knew you wouldn't have the guts to kill that man, and if you hadn't I would have been in big trouble, too. You're supposed to be my kinsman, remember?"

"I had to talk to one of the workers," said Munson. His face was pale.

"And a fine darned mess you made of it!" exploded Rodell. "In case you've forgotten, I'm still the agent in charge on Manyh. After I leave you can get yourself into all the trouble you like, but until then you're under my orders."

Munson stopped, his round face working with anger.

"I realised what your feelings might be before I landed. Nobody likes to give up something he has worked for for twenty-five years, but you've gone out of your way to make my position difficult. I've tried to co-operate with you, Rodell, even though any competent observer could see at first glance that you have been working the wrong way here."

Rodell stared at the younger man, his leathery features twisted into an expression of humorous incredulity.

"Why, thank you, sonny," he said, softly. "Maybe you could have done better. Anyway you'll get your chance soon enough."

"I can't wait that long," said Munson, carried along on the tide of his fury. "Call up H.Q. on the sub-etheric and we'll settle this thing right now. Regulations provide for such situations. We can each put in a full report and let them decide who shall be in charge."

"Don't quote regulations at me, you sanctimonious little clown," said Rodell, contemptuously. "What makes you think you can right the wrongs of the universe in ten minutes? When I hand over the communicator you can send in

any report you wish, but until then you can cool your heels. Those desk men at H.Q. might be just stupid enough to swallow your nonsense."

Munson had never really expected Rodell to agree with the suggestion. Faced with the evidence of the old agent's incompetence H.Q. would not have hesitated to put Munson in charge immediately.

"Very well. I consider that your refusal relieves me of all further responsibility towards you," he said. "From now on I shall work as a free agent, using my own methods. I have already decided that tonight, after dark, I shall go into the city dressed as a worker. That seems the only way to get to the root of the matter. You will be free to continue your life of idleness in the palace without fear of my interference. Whatever situation I find myself in I shall not call upon you for assistance."

"O.K., if that's the way you want it—carry on," said Rodell. A grin of satisfaction flickered momentarily round the thin mouth. "Perhaps you would like to sign a statement relieving me of all responsibility for your welfare. Just for the record, you understand . . . The life of a worker is rather precarious."

Munson squared his jaw. "I'll do that right away, but don't count on having to use it."

"To make sure you don't make a hash of it from the outset I'll get hold of some worker's clothes for you," said Rodell. Munson accepted the offer ungraciously.

THE DARKENED STREETS OF the city had the rank, oppressive odour of a sewer. A light drizzle of rain was falling and the cobblestones were greasy underfoot. Munson walked alone, clad in the rough garments Rodell had obtained for him, feeling a little foolish now. Apparently the workers retired to their shacks as soon as darkness fell and left the streets deserted. The thought of turning back nagged at his mind, and only the anticipation of Rodell's scorn prevented him doing so.

Rounding a corner, Munson stumbled on something soft and yielding. In the dull, yellow light that spilled through a window on the other side of the street he saw the bundle of rags move. A cadaverous face looked up at him.

"Keep your distance, citizen!" The voice was like the

rustling of dry leaves. "Unless you wish to be as I—rotting away with the yellow sickness."

Munson realised with horror that here was yet another example of the barbaric customs of Manyh. The sick were turned out to die on the streets in a society whose fear of disease was greater than any ties of blood or sympathy. The very concept of lethal disease held a strangeness for Munson with his conditioning in pituitary control.

Research on the general adaptation syndrome had led many centuries before to a method of strengthening the nerve connections between the base of the brain and the pituitary gland—thus enabling Earthmen to control its hormone secretions and hence the body's defence mechanisms. The ancient microscopic enemies of man no longer held any fear when he was able to combat any infection or injury on a conscious level.

Ignoring the warning, Munson bent down and looked into the face of the sufferer. Perhaps here he had stumbled on the answer he was seeking—a way in which he could improve the lot of the Manyhians and at the same time gain their confidence.

The unconditioned human-

oid body has three stages of response towards disease: the alarm reaction, the stage of resistance and the stage of exhaustion. This man was reaching the end of the second stage—soon his unco-ordinated defence mechanisms would give up the struggle against the disease and he would reach the third, which led to inevitable death.

Munson ran over quickly in his mind the knowledge he possessed of the Selvoye Technique, which was used on Earth for treating disease in small children who had not yet been conditioned to pituitary control. Applied under deep hypnosis this technique was a natural evolution of the ancient hetero-suggestion process and enabled a second person to take control of the patient's pituitary mechanism.

"I have no fear of your yellow sickness, brother," said Munson, placing a hand on the feverish forehead. The sufferer looked up at him, sunken eyes wide. "Your disease can be conquered if you will let me show you the way."

"Who are you?" rasped the tortured voice.

"That is of no importance—trust in me and your sickness will be cured," continued Munson. His weakened con-

dition and the shock of the stranger's unusual attitude rendered the sick Manyhian an easy subject for hypnosis. Munson had him well under in less than thirty seconds. He set to work pouring in the suggestion formula.

Unheeding the rain that was soaking through his shoddy garments, Munson concentrated on the task of guiding the untrained mind along the path to pituitary control. The ESRA linguistics experts had trained him well and he broke down several semantic blocks with ease. After a groping start he found himself confidently channelling the unco-ordinated defences of the Manyhian. In less than half an hour the patient's respiration and pulse were brought back to normal as the controlled hormone secretions gained the upper hand of the disease.

Munson placed a final, self-perpetuating command into the Manyhian's unconscious and brought him back to awareness.

"The pain is fading," murmured the patient, stirring. "What has happened?"

Munson reached down and, placing his arms round the emaciated body, lifted him to his feet.

"You are going to recover from the yellow sickness. You are still weak with the effort of fighting the disease, but its power to harm you is gone."

The Manyhian leaned against the damp wall for support, regarding the Earthman with an expression of mingled joy and fear.

"What are you—a magician?" His voice was gaining in depth and strength. "My family placed me on the streets because I was dying, as happens to all men who contract the yellow sickness. But now . . ."

"I am no magician," said Munson. "Just a man who wishes to help you and your people. Where do you live? I will take you back to your family. They will regret the brutal way they have treated you."

"There was no brutality," protested the Manyhian. "My family love me well, but they were forced to follow the custom. The children of Sonliq the tailor are well-known for their affection. They will rejoice to see my health returned. Come to my house and you shall see, magician." He took a step forward and staggered. Munson offered the support of his arm and the

two walked slowly along the dismal street.

Munson stood to one side as Sonliq rapped feebly on the door of a darkened hovel. A moment later a sickly yellow light flickered inside and the door opened. A thin, fair haired Manyhian girl stood, wide eyed and trembling.

"Father Sonliq!" she said. A scream bubbled in her throat. Munson leapt forward and, placing his hand over her mouth, pushed her back into the house.

"Inside!" he hissed to the man. "I shall not harm you. Please be quiet," he said to the girl, as the door closed behind them. He removed his hand from her mouth. She drew away from him, still trembling. Three other children, younger than the girl, cowered on a straw bed in the corner of the room.

"Don't be afraid, my children," said Sonliq. "I am no ghost. The magician here has cured my sickness and we can be together again."

The girl hesitated for a moment, then ran forward and flung herself into her father's arms. The other children followed her example, sobbing in hysterical joy. Munson watched, silently

marvelling at the barbaric customs that could override such obvious affection. At length the girl turned and approached him, solemnly.

"We thank you, magician, for the return of our father who was dead. How may we repay you?"

Munson smiled at the large-eyed little alien. "Shelter for the night will suffice," he said. "Care for your father—he is still weak and needs food and sleep."

"Our house is yours," said the girl. "What is your name, magician?"

"Not magician," said Munson, softly. "Call me brother... brother of man."

News of the miraculous cure of Sonliq the tailor passed quickly through the community of superstitious workers. The following afternoon a crowd of afflicted Manyhians waited outside the house looking for the healer.

"What do they want?" said the girl, fearfully, peeping out of the window.

"Do not be afraid," said Munson, surveying the silent gathering of crippled and diseased workers with satisfaction. He opened the door and walked out into the street.

"Welcome, brothers. Are you looking for me?"

A tall Manyhian with a withered right arm looked down at him eagerly.

"Are you the magician who cured Sonliq? Give me back the use of my arm, I beg of you. I will give anything."

"Time—give me time, brother," said Munson with a smile. These people were so childlike in their simplicity, despite their barbaric culture.

"I want nothing from you but your friendship." He ran his hands lightly over the arm, feeling the stiffened joints and wizened muscles.

"Lift your arm above your head!" he commanded, sharply. The limb moved a fraction of an inch upward. The tall man's face was tense as he fought to make it obey his will.

"Good! You see? It moved," said Munson. "But you try too hard. Have confidence and you will be whole again, I promise you. Tomorrow you will be able to raise it higher and the day after higher still. Just believe, brother."

The man looked down at his arm, a grin on his ugly features. "I shall be whole again," he repeated, triumphantly.

Munson turned and addressed the watching crowd. "All of you can be cured, my

brothers, if you will only have faith. All men are born equal with the key to destiny in their own minds. Help yourselves and help others; this is the secret of life . . ." His early training in semantics and rhetoric stood Munson in good stead as he poured new, exciting suggestions into the receptive minds of the Manyhians.

As with all humanoids, at least fifty per cent. of their ills must be psychosomatic in origin and would respond to auto suggestion. Later he would treat individual cases, as he had Sonliq, but now the methods of Coué and the other ancient masters would provide him with the mass effect he required.

From that day onward a growing crowd of Manyhians gathered each afternoon to hear the healing speeches of the brother of man. Those who had been cured stayed with him long into the night, listening in rapt attention as he spoke about the wonderful new concept of democracy. The barbaric customs that had shackled them in the past became increasingly abhorrent.

Munson became more and more obsessed with his mission to free the Manyhian

workers. He worked night and day, unregarding of his personal needs. The once rounded, boyish cheeks became thin and bearded; his eyes steady and fanatical in their gaze.

ONE AFTERNOON, SEVERAL months later, he stood with his band of followers beside him, talking to an attentive audience. The spell of the quiet compelling voice was rudely broken as a troop of heavily armed palace guards rounded the corner with a clattering of hooves. Bearing down on the crowd, they forced their way towards Munson, trampling mercilessly on those who failed to step aside.

Sonliq caught him by the arm.

"Get away while there is still time! The crowd will delay them—anyone in the city will give you shelter." Munson eyed the approaching soldiers calmly.

"No. That is not the way. This moment had to come, sooner or later." He walked forward to meet the leader of the guards. "Do not harm these people—I am the one you want."

"He who calls himself the

brother of man?" said the guard. Munson nodded. "Then come with us. The Khuru demands your presence at the palace."

Munson felt the rush of adrenalin to his stomach as the situation he had contemplated many times closed in on him with the finality of a trap. He raised his arm in a gesture of benediction to the crowd and followed the guard along the street, head held high.

A group of silent Manyhian nobles stood in the great hall of the palace. The golden throne was empty. The Khuru lay on a divan at its foot, writhing in pain. Munson scanned the faces of the nobles, but Rodell was not amongst them. *He probably fears that I may implicate him in some way*, thought Munson as he was led towards the divan. He looked down impassively at the contorted features of the Khuru.

"Heal my sickness, brother of man!" commanded the ruler.

Munson smiled and folded his arms. "You misunderstand, Khuru. I have no supernatural powers—my patients heal themselves."

"Don't lie to me, rebellious swine!" snarled the ruler,

gripping convulsively at the blaster which lay by his side. "Hundreds of workers have been healed by your magic, and afterwards stayed to listen to your traitorous speeches. Your life is already forfeit, unless you obey me."

It would be so easy to treat the degenerate ruler and live for the rest of his time on Manyh the comfortable life of the court; but Munson knew that was not for him; his path was already chosen. He would not take the easy way like Rodell and become a traitor to ESRA and himself.

"My magic is not for you, Khuru," he said, retaining the cool smile as he wittingly threw away his life.

One of the nobles stepped forward. He smashed his clenched fist into Munson's face. The Earthman reeled and fell to the floor.

"Perhaps this will help you change your mind, dog of a worker."

Munson lifted himself to his feet with quiet dignity, wiping the blood from his mouth. "I have no fear of your tyranny. You cannot force me to heal you."

The Khuru raised the blaster. Munson knew that death was very close. He scanned the faces once more. He expected

no help from Rodell; in fact he did not wish for any, but it would have been interesting to see the Agent's reactions to the situation.

"No, not that way, mighty Khuru," said one of the nobles. "The thunder weapon is for heroes. Let this man be burnt to death on the square in front of the palace as an example to the fools who have listened to his treason."

The weapon lowered.

"You speak with the tongue of wisdom, Kathraq," said the Khuru. "You hear, brother of man? What is your choice—will you obey me, or die in the fire?"

Munson's face was a smiling, immobile mask with glistening, wide staring eyes. So it was to be the fire—that would be as good a symbol as any. Somehow, he had hoped . . . but that had been another world.

Munson looked out across the palace square from the top of the mound of tinder-dry brushwood. His hands were bound firmly to the stake behind him, leaving his body and neck free.

The nobles stood on the palace steps, bearing in their midst the litter which carried the sick Khuru. Munson wondered idly whether the ruler was suffering from anything

more serious than a stomach ache. Big men suffer small pains loudly. Still he could not see Rodell. He wondered how the old Agent would word his report.

On the other three sides of the square, closely controlled by the palace guards, stood the workers. Their faces were sullen and angry. At one word from Munson they would rush forward and be massacred in their hundreds in an attempt to save him. But Munson did not intend to give the word.

Four palace guards, carrying burning torches, walked down the palace steps. They paced, shoulder to shoulder, towards the mound with theatrical slowness. About ten yards away from it they separated and approached from different directions.

Munson closed his eyes for a moment to summon the glandular control that would enable him to withstand the searing pain of the fire. He heard a deep-throated growl from the crowd as the torches made contact with the brushwood and the flames began to crackle upward.

He opened his eyes to smile down in benediction on the crowd—and realised, incongruously, that he was no

longer the centre of attraction. Every face in the square was turned upwards. With a surge of annoyance Munson followed their gaze.

Far up in the cloudless Manyhian sky a shining object was descending rapidly towards the square. The heat of the fire began to gnaw at the soles of Munson's feet. The acrid smoke drew tears from his staring eyes as the ESRA scout ship ceased its descent and hovered some ten feet above him. The Manyhians cowered in terror from the heavenly apparition.

The port of the scout ship opened. A transparent plastic ladder dropped down and dangled a few inches in front of Munson. A brief ray of violet light flickered downwards and he felt the bonds that held his hands melt away. The fire was a roaring torrent and he could smell the reek of burnt flesh peeling from his lower limbs.

The lean face of Rodell appeared at the open port. "Get up the ladder, man—quickly!"

Munson was unable to speak; the effort of conquering the pain of his burning body was too great. He managed to shake his head.

"Blast!" said Rodell. He

shinned rapidly down the ladder. Munson heard the roar of the crowd as they saw the apparition in the shining Plaston suit walking on thin air. He struggled feebly as he realised what the Agent intended to do.

"Leave me—you interfering fool!" he screamed. "You don't understand!"

Rodell delivered a short jab to the bearded jaw and the protests ceased. Slinging the smouldering body over his shoulders he climbed slowly back up the ladder. Once aboard the ship he placed his burden on a couch. Rushing to the controls, he flung the scout at maximum acceleration out of the Manyhian atmosphere.

MUNSON RETURNED TO consciousness. He stifled a scream as the searing pain of his charred legs burst in on him.

Rodell was talking into the sub-etheric communicator.

"... pulled him out just in time. In bad shape, but I think he can be patched up O.K. . . . Yes—the whole works. A heavenly assumption in front of about five

thousand of them. The whole plan worked like clockwork. It had to, the poor devil was so sincere. I shot the Khuru full of the virus you suggested and he was howling for the miracle man within a few hours. Munson wouldn't play, of course, so they decided to give him the Joan of Arc treatment.

"We can safely leave the Manyhians to their own devices for the next few hundred years, maybe longer. Their old mystico-religious symbols can never stand against this kind of stuff. I predict a spiritual religion based on the democratic teachings of Munson within the next few years . . . Sure, I know it's a good method of cutting down the number of Agents required—but what are you going to do when you run out of schizoids with Messiah complexes?"

Munson screamed—long and horribly.

Rodell jumped from the pilot seat. His wolf face bore a strangely compassionate expression as he thrust the hypodermic into the quivering flesh of the madman.

"Sorry, son. I didn't know you were listening . . ."

Invisible Daylight

by W. W. Byford B.Sc.

EVERYBODY has had the irritating experience of getting a bright idea, explaining it with great gusto to a valued friend and then receiving the now not-so-valued-friend's splash of cold water. If it is a bucketful of a splash that is probably the end of that idea. More often it seems like a spoonful on a volcano of an idea. In such case annoyance is mingled with contempt and the friend is easily dropped in favour of the idea.

But space travel is not just a bright idea, any more than wireless telepathy was anyone's bright idea. It will be man's achievement in spite of the spoonful of cold water of the sceptic, who is often just not sufficiently fond of his fellow men to be willing to give them credit for ever being able to do anything so difficult.

Mark that word "difficult." Each generation does in turn the things it finds possible, and a very large section of the current population in each generation plays a part in the

achievements—especially the true sceptic—the one who helps by exposing the difficulties before they are encountered. In space travel the unforeseen obstacle will be almost certainly insurmountable, and ~~haling~~ ^{haling} out in space, though that may be possible eventually, will be most inconvenient. So let us have all the cold water we can throw at an idea that for many of you is also a reality to be.

So far it may seem as though in my articles I have been making straw men just for the sake of knocking them down. In fact I have tried rather to take quality of space to consider what difficulties may arise from it and then to indicate how they may be met.

Suppose now you send me your own worries about the snags that will arise in space travel. I do not pretend that I shall be able to answer all your problems. If I were able to do so, I should by now be only one of a large company of people familiar with space at first hand. Let me have

further light, too, on any of the questions already discussed. It will be team work that gets us into space—the total results of all our thoughts about what will be possible and what may not be possible, especially what may not.

BLACK SKIES

New knowledge comes from experience. Remember the cover of *Authentic* No. 49, out last September? A black sky on a planetary surface where no air or other atmosphere was found? Will it really be like that when we get there? In each of my articles I have tried to describe some little experiment that you can do with quite ordinary terrestrial objects. From the experience thus obtained we have made certain deductions and applied them to space. This little experiment that I am going to describe now will show those not already familiar with the invisibility of light how it is we can be pretty certain that black will be the colour of the sky on an airless planet—or rather why such a place will have no sky.

First obtain a flat-sided glass vessel. A good medicine bottle will do, although a

square vessel with its sides more truly flat will do better. Put a small quantity of glycerine or other oily colourless substance into the bottle, cork up and shake vigorously for several minutes. Allow to stand. You now have a space enclosed in the bottle containing air which is virtually dust-free.

Next, it is necessary to establish a beam of light all of which is travelling in one direction. This can be done conveniently by enclosing an ordinary electric hand torch—or a flex-fed light bulb—in a box with a small hole or slit in one side of it. If, now, a small cardboard screen, also perforated or slit, be placed six inches or so in front of the hole in the box, any light getting through both apertures must be travelling along the straight line joining them. Thus a beam of unidirectional light will be obtained.

Now, in a darkened room, direct this light so that it falls perpendicularly on one of the flat faces of the prepared vessel. The path of the light in the air before it reaches the glass will be clearly visible, and the light after it has left the vessel and is passing beyond it will be visible, but

in the air in the bottle there will be only darkness.

When we see a beam of light passing through the air, we do so only because some of that light falls upon small specks of solid dust or motes, and is reflected by them in the direction of our eyes. We can only see, in fact, light which actually passes into our eyes and falls on the retina. Light which is going past us is invisible.

DIFFUSED DAYLIGHT

On Earth, during the hours of daylight, all the space around us seems filled with visible light as, indeed, it is, even more so than we think. The light filling our atmosphere is the so-called "diffused daylight," light travelling in all directions so that from any given point some of the light will be travelling in the direction of our eyes. Most of it, however, will be travelling in all the other possible directions—as witness the fact that other observers, standing in any position, will also see light at that point. The light that leaves the sun and reaches the surface of the Earth does most of its journey travelling in only one direction, *i.e.*, the straight path from the

sun towards the Earth. Before it gets to the surface, however, it has to pass through several layers of various gaseous mixtures which surround the Earth. These layers vary considerably in density and are turbulent rather than static. The mirage phenomena show how such conditions on even a much smaller scale can alter the direction of light. So it comes about that by the time light from the sun reaches the Earth it is travelling every which-way.

Light from the sun will not be diffused before it reaches the surface of a planet, and so, looking into space from that planet, light will only enter the eye if one is looking directly towards the sun or some other luminous body. In any other direction only blackness will appear, as in the picture in question.

Moreover, on Earth, a hill will be brightly illuminated on the side facing the sun but by no means unlit on the opposite side, because some light will be travelling in such a direction as to illuminate that also. That, of course, we have all seen for ourselves. What we have not seen so surely is that on an airless planet the side of a hill away

from the sun will be in deep shadow, lit only by such light as may have fallen on the planet elsewhere at such an angle as to be reflected onto the back of the hill.

We can see with the unaided eye how deep are the shadows on the surface of the moon, and quite a modest telescope reveals the blackness in the rims of its craters, especially in the quarters, not so much in the full.

In the space between the planets we shall find the effects even more pronounced. In the direction of the sun will be a great light but not unlimited in magnitude. And all around it will be blackness enhancing the brightness of the stars and the planets, and, in some cases, their satellites. The surface of the spaceship itself will be brightly illuminated on the sunward side, and on the other, in contrast, seemingly dark, but actually by no means faintly illuminated by the stars and planets.

METEORS

How vividly, too, will a planet appear in the airless blackness when viewed from a vessel passing through the complete shadow cone of some other planet!

All very pretty, of course, so far, and leading to quite a host of speculations and predictions about the interplanetary travellers' outlook—and anyway, our best planetary landscape artists have already told us most of it quite effectively, even if maybe we didn't get the explanation from them. Where's the problem?

Well, this time I'm not presenting a problem arising out of this particular set of circumstances. On the contrary, this time we find one set of conditions to show how the difficulties presented by another phenomenon may prove less trying than some suppose. It seems to me that here is a most important factor in dealing with the sceptic's favourite bogey man—*meteors*.

Firstly, it is pretty well established that the odds against meteoric impacts on a spaceship are considerably higher than those against the chances of winning £75,000 for your most skilfully invested shilling. We can count electronically the meteors falling into the Earth's atmosphere, even those which are too small to disintegrate with sufficient luminosity to be visible from Earth, not to

mention those that arrive in daylight. We can then calculate the chances of a meteor reaching the much smaller surface of a spaceship in an equal time. And still we have to consider the power of the Earth's gravitational field to deflect and pull in the far greater proportion of its meteor immigrants which, left to themselves, would have given us the go-by.

Also, there's quite a field of mathematics to deal with estimating the effect of relationships between speeds of meteors and speeds of spaceships. A meteor coming up behind you at 1,000,000 m.p.h. has to be pretty big to hurt if you are already travelling at 999,999 m.p.h. Even those that do hit have to be travelling in the right direction head on, if your speed and that of the meteor are comparable, to be fully damaging.

But what of the blackness?

Remember how the dust motes make a beam of light visible? It is possible that the real danger may come from the smallest meteorites. They may prove much more numerous than we suspect. But they will be in the path of the invisible sunlight that is not coming straight at the vessel and they will make that light visible, since they will reflect it and show up from afar as a shaft of sunlight through a rift in the clouds if seen at a distance. Indeed, they will sparkle like jewels in the blackness behind them.

The big fellows will shine forth from the darkness with reflected beams that will make their proximity impossible to miss.

By comparison, a contemporary motorist looking out for illuminated zebra crossing beacons is as an aircraft pilot looking for a flare path lighted by glow-worms.



Without Love

by Rick Strauss is our lead story for next month. Other stories by John Christopher, Martin Jordan, W. H. Boore and Peter E. Rigby. The usual non-fiction departments will be featured, PLUS a 16-page illustrated supplement.

AUTHENTIC—A MONTHLY MUST

If anybody brings you a long, sealed envelope, open it,
no matter how pre-occupied you may be

A Date with the Past

by LIONEL BROOKS

AS THE TIME FOR ITS opening had drawn nearer, the old-fashioned sealed envelope proved a matter of some curiosity to the staff of the Consolidated Banks in London. Its appearance alone was enough to excite interest, for it was made of real paper, processed wood fibre; but it had another, far more important feature—its age.

It had been left in safe deposit for four hundred years, ever since the middle of the twentieth century; and there were strict instructions that it was not to be opened until that exact period of time had elapsed. Further, it was addressed to one Roger del Marno, Esquire.

It had passed through the vaults of half a dozen different banks, as each inherited the effects of its predecessor, getting just a little more limp and yellowed with each transition; for the last hundred

years it had lain on a shelf of the Consolidated Banks, gathering what little dust the air conditioners missed. And now it was due to be opened.

The manager sat in his private office, and spoke to the young man standing in front of his desk. The envelope lay between them.

"A puzzle, Lyssen: there you see it. Why did the unknown consigner of this envelope—now long dead—address it so? How could he *know* such a man to exist here—now? And yet he was right, for the name del Marno is well-known to the world; there can be no mistake."

"You mean the American who has so much money?" said Lyssen, brightly.

The manager looked disapproving. "That, yes, but there is more: a great scientist, a brave man. Would not *you* like to be one of the ten men living to have walked the surface of the moon?" He leaned

back in his chair, full of nostalgia for his youth, when the second moon expedition had been the rage of the day. It had taken a long time, but only then had a protection been found against the savage bite of the cosmic ray. Del Marno had flown on the third expedition.

Lyssen stood patiently, bright and eager and completely unresponsive; his interests were few, and chiefly centred on the chair now occupied by the manager himself. Out of politeness, for he knew the answer, he asked: "Has Master del Marno been told of his legacy, sir? It needs but two days——"

"Of course, of course," the manager said, snapping back to the matter in hand. "I had a personal televue with him last week. He was somewhat—abrupt. Now he works mostly on a project with the Youn Calculator, and cares not what we do in the matter. For the courtesy of it, and because he is an important man, I am sending you to New York tomorrow. You will ensure that this envelope is opened in person by Master del Marno. I know not its importance, but four hundred years is a long time to wait..."

LYSSEN ENJOYED HIS TRIP TO New York. He flew on one of the latest magnetic reaction powered airships, very smooth and comfortable. His feeling of importance, however, was slightly lessened by having to give up his watch and pocket radio, both of which contained ferrous metals. Nearly all the other travellers were more experienced, and had their accoutrements made of materials not susceptible to magnetic stress.

The next morning Lyssen set out in search of Roger del Marno, the envelope nestling inside a protective cover. He went first to the fabulous Youn Calculator, the largest and oldest electronic brain in the world. It was housed in the former United Nations building at Lake Success, and owed its name to corruption over generations of those once-famous initials. The Calculator's unique services were hired out to individuals and concerns of due worth and importance, and there was usually a queue.

The great advances in statistical science since the twentieth century would have been impossible without its aid; it had revolutionised subjects as diverse as nuclear physics and agronomy, by

relieving them of the need to isolate one variable after another in a given problem. It could handle up to ten thousand continuously altering variables at the same time before it broke down, while the human brain found it difficult to handle two, without giving undue weight to one or the other.

The enquiry office told Lyssen that Master del Marno usually worked on the tenth floor of Annexe Two, with his wife, but only she had checked in that morning, and did not wish to be disturbed. Perhaps his home, which was nearby—?

Del Marno's home proved to be a neat white house overlooking the river. Impressed by this evidence of wealth, for the tax on private houses in space-starved New York was enormous, Lyssen approached the front door and pushed his card into the receiving slot. His name registered, and he heard a buzzer begin to sound insistently.

After some three minutes he was about to give up and search for del Marno elsewhere, when the buzzer ceased abruptly and the front door clicked open. Lyssen saw a man swaying unsteadily at the

end of a narrow hall. He was dark and heavily built, his hair tousled, and appeared to be dressed only in a nightshirt.

"Er—Master Roger del Marno?" said Lyssen cautiously.

"Come'n help me, damn you," said the other, in a blurred, monotonous voice. "Sleep—mustn't sleep—keep awake——" He slowly slumped down the wall to the floor and feebly propped himself up on his hands, still muttering and shaking his head from side to side.

Lyssen was shocked. At first he thought the man was just drunk, but as he knelt down beside him, he caught the word "hypno-drug." So that was it. He searched his memory frantically; what was the treatment? Maybe a doctor—then he remembered. He must get the man back to sleep again, and then continually order him to wake up until the command registered in the subconscious mind—if it did at all. Possibly the original hypnotic command was too strong to be contradicted. Still, he could try. The man must have a phenomenal will to have woken himself up anyway, and that would help.

Twenty minutes later, just as Lyssen began to despair of his treatment and wish that he had called a doctor, it proved abruptly successful. The man stretched himself on the bed, yawned prodigiously, and sat up. He looked at Lyssen through bleary lids, and said, irritably "Your name?"

"I beg yours first, sir," replied Lyssen, according to the customary etiquette.

"Hell with formality," growled the other. "I'm Roger del Marno; who are you?"

"Lyssen, of the Consolidated Banks in London. I bear a legacy for you—" He opened the carrier and showed the envelope.

"Gods, that thing! I told your manager it must be some kind of error, or joke. Yet I'm glad you arrived here-now, else I would have slept until my wife, Barba, came back again. It's she who must have hypno-drugged me, though why—*oh!*" Del Marno gave a startled cry, slid off the bed, and started scrambling into his clothes.

"I *told* her—the incredible fool! She must be using the time machine!"

Lyssen was suddenly and involuntarily caught up in a whirlwind of activity. He

knew nothing of what it was all about except for a few brief words from Del Marno, as they hurried to the Youn Calculator. It appeared that he and his wife, Barba, had been trying to discover the principles of time-travel, using the new mathematical theory concerning magneto-gravitic stresses. The whole project had seemed highly improbable until a short time ago, when he had actually bought a small magnetic reaction motor for use in his experiments. Suddenly, one problem after another had solved itself; they could not only send objects shuttling through time, but even choose the locations.

Del Marno stopped talking as they swung into the entrance to Annexe Two. Lyssen was relieved, for the conversation had been largely unintelligible to him. As the elevator shot them to the tenth floor he began to feel distinctly in the way. Despite his orders, he wondered whether to hand the envelope over now, then quietly fade away. A husband-wife quarrel was no concern of his.

By the time he stopped turning the question over in his mind it was too late; Del Marno had already hustled him out of the elevator and

through a sliding door bearing the legend "Laboratory C."

The room he found himself in was large, rectangular and windowless, the sole illumination being by a cold blue-white light from the hazed ceiling. There was a miscellany of equipment lying about, mostly on the floor, and a great tangle of wires and hooked-up leads ready to trap the unwary. At one end of the room there was a massive built-in information panel, which was presumably connected to the Youn Calculator; the other end was dominated by a gleaming metal grille, twice the height of a man, and curving in a shallow arc; it was fenced in by two control boards and a complexity of apparatus. Heavy busbars crossed to a nearby bench, on which Lyssen thought he recognised the humped and tubular framework of a magnetic reaction motor. A little green light shone at one end of it. Apart from a slight hum, all was silent, and nothing moved beneath the cold, shadowless light.

Del Marno cursed, and darted across to one of the control boards, where a scanner was alight; it glowed softly as a medley of coloured

lines wove an intricate pattern across its screen. He inspected it, and quickly took readings from a cluster of dials lower down. Then he whirled round, his face distorted with emotion.

"Up to five hundred years, and she knows the risk . . . I must go after her—You! Lyssen!" He barked out the name so savagely that the other recoiled. "I care not what you do, but if you stay here while I am gone—it should be but a short time—touch *nothing*, you understand? Nothing."

As he spoke, Del Marno picked up what looked like a small metal cigarette case, and fastened it carefully under his waistband.

Lyssen, somewhat at a loss, started to speak of what was uppermost in his mind.

"This envelope, sir——"

"Gods! At such a time! Open it yourself, man, and tell me later what stuff it contains." Del Marno took a last, impatient look at the control board, then stationed himself at the dead centre of the big curved grille. He put a hand to the device at his waist, and appeared to press it.

At this precise moment

Lyssen's attention was distracted by the magnetic reaction motor. Its dull hum had grown louder, and the green light had winked for an instant into furious red. When he turned his head back again, the bulky figure of Del Marno had disappeared from sight. And there was literally no place he could have hidden.

There was a stupefied pause while Lyssen struggled to accept the evidence of his own eyes; so this time-traveling nonsense *was* true! Shakily, he walked up to the metal grille, which seemed to be quivering with an almost invisible vibration; he was careful not to touch it. He turned and looked round the room, feeling very useless and alone.

Being a loyal employee of the Consolidated Banks, he felt he could hardly leave now, with his mission uncompleted. Besides, Del Marno had said . . . Curiosity mastered conscience, and he sat down on the nearest uncluttered chair. The brittle seals on the envelope flaked off easily, and he tore open its top.

Gently, he extracted a thick wad of paper and unfolded it on his lap. It was a manu-

script, the ink still black and fresh-looking. The script was flowing and full of loops, quite unlike modern writing, but Lyssen had had practice with old documents; this one presented few difficulties. With a last, uneasy glance about the room, he commenced reading.

I SWISHED THE ROD GENTLY (he read), not really caring whether the fish bit or not. It was one of the first fine days of the year, much warmer for early Spring than it should have been, and everything seemed to have sprung into life overnight. I was sitting on a secluded bank of the Thames, back propped against a tree, and had been fishing the clear, slow-moving waters for nearly three hours without success. The golden afternoon had induced in me a sense of timelessness, and a feeling that all things moved for my benefit and delight. The two lovers who had drifted by in a punt some time ago—the only people I had seen that afternoon—were not real, but creatures moving in my own enchanted world, tranquil and uncaring . . .

My mood was abruptly broken by the sound of a woman's voice close behind me.

"Hullo," it said, "what are you doing?"

I pulled myself upright and turned round, startled. I thought I had been completely alone. Not more than a dozen paces away stood a young, fair-haired girl, dressed in sandals, light-coloured slacks and shirt, with a vivid orange scarf tucked round her neck. To my still half-bemused gaze, she seemed quite beautiful; not an interruption, but a fulfilment of the afternoon's enchantment. Girl? There was an unpleasant feeling of maturity about those young-looking eyes, and, without seeing her, I had taken the voice to be a woman's.

"What am I doing?" I repeated. "Well, I'm supposed to be fishing. What did you think?" I looked at her sandals again, and wondered how she had approached so close to me without making a sound. There were still plenty of last year's twigs about, ready to crackle at the slightest touch.

"You're not trying to catch any fish," she said, reprovingly. "I've been mostly watching you the last ten minutes, and you have just had your head back, looking at the sky."

"Well, that's true," I admitted, "but why shouldn't I? It's a hot day, and I just felt like lying back and— How did you manage to watch me for ten minutes without my knowing it? How did you get here, anyway?"

She gave a little laugh; she had a high, clear voice—though she slurred her consonants curiously—and her laughter was inward and remote, as though it didn't belong to her. She moved closer, and I saw what an incredibly smooth and unlined complexion she had. I felt uneasy; it made her look as if she had stepped straight off a film screen.

"I just came. Nothing more," she said. "Oh!"—she whirled about suddenly, raising her hands high in the air—"isn't the Spring glorious? Mostly never have I known it as this, so fresh and green. What's your name?"

"Richard Malleon, but—"

"Mine is Barba del Marno. I love name-giving, especially, when you do it simply, like that, and not make it into a ritual."

I was bewildered. "Make what into a ritual?"

"Why, name-giving—but of course, you wouldn't know,

would you?" She laughed again, and slipped down the bank to sit beside me. I gave way a little, very conscious of my own scruffiness when placed beside her immaculate attire; a faint, elusive scent tingled my nostrils. I said: "Do you always make ad—— I mean, are you usually so familiar with strangers?" And felt a fool as I said it.

"Familiar?" She pronounced the word as though she had never heard it before. "Famili—— Oh, you mean like this!" She leaned over and kissed me full on the mouth, then sat back again. "That is what familiar means, isn't it?"

I swallowed hard. I knew what I should do now, so instead I flipped open the pocket of my empty fish basket and pulled out a gleaming metal flask.

"Would you like a little drink to while the time away, Miss del Marno?" I asked, unscrewing the top and using it as a cup. "The best Grand Old McNish; you can kill the midges by just breathing on them after you've drunk some of this."

"Is it a spirit? How barbarous—let me taste. And I am named Mrs. del Marno, as

you would put it, but mostly it is Barba."

"You—er—you have a husband, then?"

"Yes, but a far way away; it is no bother here-now."

"No, I suppose not," I said, handing her the flask-top. The situation seemed more divorced from everyday life than ever. I wondered whether I should try to pull it back or not.

Twenty minutes and two drinks later I was still wondering, although the question had become largely academic. We had achieved the false intimacy that afflicts strangers on the dining cars of long distance trains, or the holiday beaches of another country. But, unimpeded by conventional surroundings, we had gone somewhat further . . . Usually, I avoided such casual engagements; fortified by the McNish on an empty stomach, I only wished now that I had had more experience of them.

But the small voice of curiosity was not quite stilled. Where had Barba acquired her peculiar way of speaking? What was she doing here, on this isolated stretch of the Thames, flirting intensively with a complete stranger?

For that matter, what about the complete stranger? I had a flashing moment of self-awareness, and decided to ask a few pertinent questions which refused to be quelled by the McNish.

Disengaging my arm from Barba's neck, I sat up and turned to face her. This brought into view the grassy clearing behind us which flanked the river bank. To my astonishment I beheld a man facing me, not ten yards away, and shimmering slightly as if seen through a heat-haze. *Shimmering?* I shook my head and looked again.

This time all was normal. The man was obviously tangible and real. Almost too obviously. Broad-shouldered and standing over six feet tall, legs apart in a defiant attitude that was emphasised by his hard and glossy riding-breeches, his eyes held a look of cold fury in them.

"Barba!" The deep voice cut out like a knife. "Are you mad, here like this?"

With a little cry she sprang up from my side to face the intruder.

"But the hypno-drug I gave you——!" she said, shrilly. "Roger! It couldn't fail! How——"

"Little fool! You thought I was unaware? Quick—every second here is danger. What have you been saying to this man?"

I had scrambled to my feet by now, and a wild thought crossed my mind. I blurted out: "Is your name Del Marno?"

The man appeared to ignore me, eyes fixed on the woman, and his voice had a strangled quality as he spoke to her: "You have even told him names? That means a memory-erasing hypno. Don't you realise—*what else does he know?*"

"Now, wait a minute!" I said. "This is ridiculous. What am I supposed to know that I shouldn't? If you are this lady's husband, I can only say that I'm extremely sorry, but I had great provocation. Great. You really shouldn't let her loose like this. Would it make things easier if I just left you to work it out yourselves? I meant to be going about this time, anyway."

"Stop!" The man's voice was imperative. "I cannot be sure you do not know our origin. Probability alone is worthless——"

"Roger! It is you the fool!

If he goes now, and we are still safe, so it remains for ever. We reach our own time again——" She stopped abruptly, and clapped a hand over her mouth. Her eyes stared at the big man in dismay.

His defiant pose sagged and he made a gesture of futility. Del Marno—for it was obviously he—at last looked at me. He said, wearily: "As for my wife, sir, it is no matter. Mostly she does things like this. Now she lets slip the fact that we come time-travelling, from four hundred years in your own future——"

"Stop talking!" the woman screamed. "He may yet——"

"No, Barba, it is too late." The big man shook his head. "Your slip has already told him too much."

I clutched the back of my head to keep it in place. "Time-travelling? Like that Wells thing? You mean—— Oh, no, this is ridiculous. Are you trying on some kind of confidence trick, by any chance?"

"You believe not now," said Del Marno, "but soon you will—and possibly the knowledge will change your life, and so the lives of your descendants, until our own

time be reached. The YOUNG Calculator itself, which makes the means to time-travel, is powerless to predict the extent of any such change. All time-travel involves this risk, for the balance between past and future may be upset. Every second we stay here, every word we speak, may so alter the course of history that our very lives be cancelled out of existence. But first I must send Barba back, then hypno you." He advanced purposefully toward his wife.

The situation had moved too rapidly for me to understand it. Del Marno's manner seemed sane enough, though somewhat menacing, yet his words refused to make sense. I couldn't see what danger—— My thoughts scattered as Barba rushed on me and gripped my arm furiously.

"Stop him!" she cried, hysterically. "I won't go back, I won't! All he has for me are his jealousy, and his anger, and his pride. Del Marno——" she spat the name "——I give it back! I stay here-now, and see you never again!"

"Barba! Calm yourself," I began, futilely enough, and then stopped abruptly. For the first time the illogical

feeling that they were both play-acting left me, and a chill wind of reality caught at my throat. The woman had just drawn a small gun of some sort from her side pocket, and was aiming it straight at Del Marno. The sunlight glistened dazzlingly off its queerly bulbous barrel. Her voice not quite steady, she said: "Do not touch me; move not one step nearer."

Del Marno's mouth moved contemptuously: "First a hypno-drug, and now a paralysing gun—indeed a loving little wife, Barba. But your gun is useless. When I was young and reckless, before I met you, I took anti-paralysing treatment; now, my nervous system is immune. You cannot harm me."

I felt her grip tighten on my arm. "That I never knew," she said. "But it matters not. This gun is not a para— Roger, stop! *No!*"

As Del Marno lunged forward, her voice rose to a shriek, and I saw her hand tighten convulsively round the gun. The big man's body suddenly stiffened, and he drew himself up to an incredible height; then, hands clutching at air, he fell slowly and horribly to the ground,

like a toy soldier being pushed over. He lay, face down, unmoving, and in the shocked silence that followed I knew quite certainly that he was dead.

The woman stood still for a moment, looking down with eyes as wide as saucers—all hysteria completely blown away. Then she collapsed by Del Marno's side and tried frantically to pull him over on his back. Her voice broke, pleaded: "Roger! I didn't mean—— You must be alive! You *must* be!"

I knelt down beside her and fumbled for the heart. The body felt curiously stiff, and there was no reaction whatever to my searching hand. I applied the polished whisky-flask to his mouth; there was not a trace of misting on its smooth, bright surface.

I picked up the gun which Barba, unheeding, had dropped on the grass. Its muzzle was covered by a fine metal grating, and there were two little inset buttons on its side instead of the conventional trigger. I said: "What is this thing? How can it kill a man stone dead——"

"Dead——!" Her voice almost wailed the word out. Then she stiffened, and

snatched the gun out of my fingers with the speed of a striking snake.

"You lie! I believe you not! This is no paralysing gun; it is a new sonic, acting on voluntary muscles only, to destroy co-ordination . . . it is agony, for I have felt it, but it is not death. Unless——" she gasped in horror "——the anti-paralysing treatment! No one has thought to try such an effect . . . the heart reaction . . . I must go back with him!"

She turned fiercely on the dead man, fumbled with his waistband, then pressed down on something with her thumb. To my utter disbelief the body started the same eye-aching shimmering that I had previously attributed to my own faulty vision. A second later, with a faint crackle that sounded like static electricity, Del Marno disappeared. There was a little rush of air as the vacancy he had left was filled.

My scalp prickled, and I fought down an ancient superstitious terror. Barba, seemingly oblivious of me, pushed a thumb inside her own waistband, then stopped. She raised her head and looked straight into my eyes. A touch of sympathy made her face look both older and kinder.

"I—I am sorry to have caused this. Please forget. Now, goodbye."

Her outline hazed and then she, too, disappeared. The clearing was empty. As if to emphasise the fact, a little thrush swooped down to perch on a fallen tree-branch, inspected me briefly with its bead-bright eyes, and then flew off again with a flutter of wings. I was left completely alone . . .

That was three months ago. It seems reasonably certain that nothing more is going to happen now, so I am committing the tale to paper before any of its details slip my memory. It already seems unlikely and remote—yet, not being psychotic, I know that I have not confused a bad dream with the real world. However, quite hopeless to convince anyone else of that! And I have no corroborative evidence whatever.

But I feel that I shall burst unless I can tell the story to *somebody*—somebody who will believe me. And about the only person I can reasonably trust to do that is . . . Mr. Roger del Marno. I am, therefore, sealing up this manuscript when it is finished and placing it in a safe

deposit box, addressed to Mr. del Marno, with instructions that it must not be opened until exactly four hundred years have passed, which is the length of time he mentioned.

I have thought about this affair, and the implications of my present action, but the only consequence has been a series of headaches; the more I try to work out which influences which, the past or the future, the more confused I become. I am only thankful that I can now seal this up, and forget all about it. Except—

May I send my kind regards to Barba?

Richard Malleson.

LYSSEN LAID THE LAST SHEET of paper down, and full realisation came. He started up from his chair, wild thoughts of averting the tragedy chasing through his mind. If only—! Then he sank back again. There were no ifs about this situation; it had already happened, four hundred years ago. There was nothing he could do about it.

He raised dull eyes to the still empty, gleaming metal grille, and waited for the inevitable.

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MARCH of SCIENCE

REACTOR SCHOOL

A sign of future times is surely to be seen in the recent establishment of a college the sole purpose of which is to give instruction in the field of atomic power. This is the Reactor School at Harwell, which, from January, 1955, will give three-month courses in nuclear physics, reactor physics, metallurgy and reactor engineering. The courses are open to people with good degrees in physics or engineering, and with mathematics of subsidiary degree level.

Preference will be given at first to graduates employed by firms connected with the various atomic energy projects, especially power projects. The fee for the course is £250—not by any means within the reach of all! But the School will, undoubtedly, be a great success, and it is at once encouraging and reassuring to know that this

venture is wholly concerned with the peaceful use of atomic energy.

BRAIN—BODY

Cleansing Fires, the story by Dan Morgan in this issue, will certainly be prophetic, for yet another piece of work has been done to demonstrate the connection between the anterior pituitary gland and the brain¹. This gland controls a wider range of bodily activities than any other similar structure—growth, metabolism, reproduction, resistance to stress, water balance, salt balance, etc. One of its functions is to enable the female animal to become ready for reproduction—œstrous. Dr. B. T. Donovan and Professor G. W. Harris have just carried out experiments on ferrets in which they cut the stalk that connects the gland to the brain and, thereby, prevented blood from the brain reaching the pituitary.

None of these animals became œstrous—suggesting almost certainly that the pituitary must have this “brain blood” before it can prepare the animal for bearing young. It is thought that the “brain blood” contains a chemical substance formed in the brain, that acts on the pituitary. Readers will remember that this was a topic dealt with by Peter Summers in his article *Brain and Body* in *Authentic* No. 50.

RADIATION INJURY

Since a Japanese fisherman died a while back from the effects of radioactive ash from a test explosion many miles away, the problem of the biological effects of radiation has acquired increased importance. One of the most recent pieces of research on this topic was concerned with the effect of radiation on hydration changes in the animal². It has long been known that nausea, vomiting, diarrhœa, œdema, fall in blood pressure and shock—results of radia-

tion poisoning—all give rise to such changes. Many authorities believe that rapid disassociation of H_2O into OH^- and H^+ and the rapid and brief recombination of the ions into peroxide may be the cause of most radio-pathological conditions.

Robert Rugh decided to determine the hydration changes in various organs and tissues of the mouse as a guide to which part of the body should be studied more intensely. Science was rather confounded. Severe X-radiation produced a water-shift that was only secondary to a decrease in dry weight of the organs and tissues. (The adrenal gland was exceptional in showing an increase in water content.) More startling still, Rugh found that nervous tissue (especially the brain), once thought to be the least affected tissue in the body, now showed a very significant increase in water content. He believes that the brain is the *most* affected organ and suggests that future work

should be concentrated on this structure, rather than, as hitherto, on the liver, muscles, bone marrow, etc. This bit of work may well prove of fundamental importance during the development of atomic energy and—later—during the development of space flight with its hazards of cosmic radiation injuries.

NEW INSTRUMENT

As our new series on Milestones in Science points out, science does not progress by men and minds alone. Instruments are needed, too. A welcome addition to the world's instruments has just been devised by workers at the Radiation Physics Laboratory, U.S. Bureau of Standards³. This is an apparatus for determining the energy of a single x-ray photon. It employs the principle that, when an x-ray photon is totally absorbed in a large volume of a "scintillating" matter (e.g. xylene), a light pulse amplitude is produced

that is proportional to the x-ray energy. By clever design and ingenious use of materials, R. S. Foote and H. W. Koch have produced a device that will work over the x-ray energy range of 0.5 to 50 Mev.

BRAIN SURGERY

Neurosurgery is a favourite topic among the best science fiction writers who see in it tremendous possibilities for the relief of mankind's mental ills in the future. Professor E. D. Adrian in his Presidential Address to the British Association at Oxford last September said: "Only the writers of science fiction would suggest a future in which the problems of civilisation will be dealt with by tampering with the brains of some or all of mankind." The good professor's tone of disparagement was rather misplaced and hopelessly out of touch with modern neurosurgical wonders, for the medical journals ever more frequently give accounts of the tremendous benefits that brain "tam-

pering" can produce for people.

One such account was recently published⁴ in which was described how one of the best neurosurgeons in the land, Dr. Murray A. Falconer, had turned a miserable misfit into a useful citizen by "tampering" with his temporal lobe. The patient had the unfortunate characteristic of going into a kind of trance at the sight of a safety pin, from which he derived much temporary pleasure. These sessions invariably led to epileptic fits. The man used to hide himself away while he indulged this caprice, because he knew that it was an odd habit. It was not until his wife discovered the queer trait and gradually came near her wits' end trying to handle it that the patient was brought to hospital. At this point his marriage was almost on the rocks, he was in danger of losing his job, and he was just about as miserable as a man on the road to insanity can be. And

he had a fit about every seven or eight days.

After examination, a piece of the temporal lobe in his brain was removed (examination had shown that this area was not normal) and the patient carefully nursed back to health. Over a year after the operation, the patient was again examined and found to be a normal person. His marriage was now perfectly satisfactory, his work was secure, and he was happy and confident of the future. He no longer went peculiar with safety pins, and he no longer had epileptic fits.

A little more of this sort of "tampering" might convince even Professor Adrian that science fiction is merely the *avant-garde* of unprejudiced science.

- 1 Donovan, B. T. and Harris G. W., *Nature*, 174, 503 (1954).
- 2 Rugh, Robert, *Nucleonics*, 12, 28 (1954).
- 3 Foote, R. S. and Koch, H. W., *Rev. Sci. Instrum.*, 25, 746 (1954).
- 4 Falconer, M. A., *et al.*, *Lancet*, ii, 626 (1954).

The sands of Mars lie heaped and still over—

JOHN BROWN'S BODY

by SYDNEY J. BOUNDS

"**H**OW DOES IT FEEL?"

The words came from a distance, muffled. There was a bright glare of light and his eyes hurt after the long darkness.

"How does it feel? Answer me."

The voice was persistent through the throbbing of his brain. He struggled up from the depths of sleep to answer.

"Strange . . . my head aches . . . I . . ."

"That will pass," the voice assured him. "You can get up now."

He became aware that he was lying on his back on a table. He swung his legs to the floor and stood, balanced precariously. The room came into focus. An operating theatre.

White walls, arc lights, gas cylinders, a metal tray of gleaming surgical tools. A man in a white coat—that would be the surgeon; a man in military uniform—he felt a desire to please this man; a nurse—she looked at him with an expression mingling pity with horror.

"Your number," said the military man, "is one million,

two hundred and seventy thousand and seven. You will remember this number—you will never forget it. Repeat your number."

"One million, two hundred and seventy thousand and seven."

"Good."

He stood motionless, wondering about the strange things that went on in his head. Memory was jumbled, somehow; childish recollections floated about in timeless sequence. He could not remember how he came to be in hospital and it did not occur to him to ask. Neither did it occur to him to move.

"March," said the military man. "Swing your arms shoulder high. Chest out, head up—you've nothing to feel ashamed of. You're a man now . . . a soldier!"

He marched across the room and stopped when the wall prevented him going further. He did not feel pain when he hit the wall.

"Turn about. March!"

He obeyed.

There was the queerest sensation in his chest and breathing was difficult.

"Halt."

He halted.

"Feel all right?" asked the doctor.

"I—can't—breathe."

"You'll get used to it. Anyway, you'll be on Mars soon, where your breathing will seem normal. Don't worry about anything."

"Don't *think* about anything," said the military man.

"Don't try to remember. We'll take care of everything for you. Remember your number and obey orders. You will always obey the orders of an officer. Understand?"

"Yes."

"Say 'sir' when you address me!"

"Yes, sir."

The military man turned to the doctor.

"Well," he demanded, "have you finished with him?"

The doctor nodded.

"He's fit for duty. I'll sign the certificate."

The formalities were speedily completed.

"Follow me," said the military man to number one million, two hundred and seventy thousand and seven.

He followed. In the barracks adjoining the hospital, he was given a uniform and equipment. He was placed in a long room lined with mat-

tresses and left with others of his kind. He lay down; and presently a man came to feed them. One concentrated food tablet every twenty-four hours . . . that was all they needed now their metabolism had been changed.

The days passed. He was given a weapon—a shining cylinder of metal, designed for mass-murder—and trained in its use. He became proficient in destroying the targets set up for him. "Martians" the officer called them.

Back at the hospital, a clerk was making routine alterations in a thick ledger. He crossed through a name and wrote in a number—one million, two hundred and seventy thousand and seven. The name was John Brown.

There were crowds lining the streets. In places, strangely tense and silent crowds, mostly composed of women and old men. There was little cheering or waving of flags, except by the children; and they did not understand what it was about. They simply enjoyed the martial music and the rows of uniforms and the military commands: "*Left, right, left, right, left, right . . .*"

He was in the second rank, on the extreme left. He was very proud of his uniform and

the shining weapon they had given him, and he marched with his head up and his arms shoulder high.

One million, two hundred and seventy thousand and seven. *Left, right, left, right, left, right . . .*

So many white faces and staring eyes. There was a girl looking right at him. At *him!* She was young and pretty, with golden hair and tears in her eyes. She ran along behind the crowd, keeping up with him. Her eyes were always on him and sometimes she waved a white handkerchief and sometimes she called: "John... John . . ."

He wondered who she was.

His memory was playing tricks again. He was lying on a grassy bank, running his finger through her golden tresses. He was holding her in his arms, kissing her. The sequences were all mixed up, disconnected, meaningless. There were disconcerting blanks in his head.

Tramp, tramp, tramp, went the metal-shod boots on the tarmac road. Sunlight glinted on the metal weapon of the man in front, and on the instruments of the band leading the way. The music stirred his blood and he was happy to be marching.

The girl with the golden hair kept bobbing up, looking at him, crying, waving, calling out. What was it she called? "John."

What a strange thing to call. It didn't mean anything that he could remember. Perhaps she didn't know his number . . . one million, two hundred and seventy thousand and seven.

He wished she would go away. For some reason, it upset him to see her keeping pace with him. He wondered why she was crying when he was so happy.

Left, right, left, right, left, right . . .

He passed a row of hoardings and the letters were bold and easy to read:

EARTH LOSES ANOTHER BATTLE
NEW CONTINGENT FOR MARS

THE WAR DRAGS ON

He was a soldier going to war, to Mars. The crowd was held back by steel-wire fences, and the tarmac ended and gave way to concrete. Ahead, a bullet-shaped vessel pointed its nose at the sky and waited for him. How fine it was, shining in the sun, balanced on curved fins with a vertical ladder running up to the entrance port. He was glad he would be climbing that ladder to Mars.

The girl with golden hair pressed herself against the wire fence, looking with eager eyes. There was an emptiness in her. He had seen her, but had shown no sign that he recognised her.

She watched the men march into the distance. The band stopped playing and the sound of tramping feet died away. The crowd was hushed.

The sound of her crying was the only sound in a vast silence. An older woman put her arms about the girl.

"They don't feel nuthin'," she assured her. "Don't think about it, dearie."

"Oh, John," the girl whispered, "you can't have forgotten already—you can't!"

The soldiers halted, waiting in precise ranks. One by one, they mounted the ladder into the rocketship. She could not recognise him; he was a dark figure against the gleaming silver of the ship, climbing higher and higher. She counted the men and knew it was he. Then he disappeared from view.

She waited till all the soldiers had entered the ship. The rockets fired and the ship rose on jets of brilliant flame, vanishing into the sky.

"Gone, gone for ever . . ."

She turned away, bearing a child who would never know its father.

For weeks he lay on a mattress in the main chamber of the rocketship. There was no space to move. Every twenty-four hours he placed a food tablet in his mouth and let it dissolve. His body automatically adapted to the changes of acceleration.

A day came when the ship landed on Mars.

Obedying orders, he went outside with the others and they formed up. It was bitterly cold. The air was thin, and even his new lungs took some time to get used to it; then he found breathing easier than he had on Earth. He became preoccupied with the incredible expansion of his chest as he breathed the Martian atmosphere.

He stood and waited for orders.

The sky was blue and the flat waste of desert a rusty-red colour. Further off, he saw a sickly-green vegetation straggling the banks of a shallow ditch. There was no water in the ditch.

"March," came the order.

Head up, chest out, arms swinging level with his shoulders. *Left, right, left, right, left, right.* The sand shifted

under his feet and the going was heavy.

The officers, not adapted for local conditions, rode in an enclosed tractor, breathing a manufactured air. Mechanical amplifiers broadcast their orders.

The ship shrank to a silver bullet on the horizon and a cluster of plastic bubbles appeared ahead of the soldiers.

"Halt."

They halted, waiting patiently. The officers went inside one of the bubbles.

Number one million, two hundred and seventy thousand and seven fondled his gun. He felt a desire to use it. He wanted to shoot at the targets they called Martians. But he must wait for the order . . .

A dust storm blew up. The sky darkened. Sand spiralled upwards and formed a solid wall that hurled itself at the ranks of soldiers. They did not move. They could not understand.

They stood in silence, breathing the knife-edged crystals of sand into their artificial lungs. It was unpleasant, but they did not know what else to do. The storm drove past and left them where they were, still breathing, still holding their

guns and waiting for the order to kill.

They were soldiers and this was war.

Inside one of the bubbles, two men observed the ranks of soldiers.

"They stand up well to it," said the general, approvingly.

He set down his whisky and soda and watched through field glasses.

"We're learning fast," the medical man remarked. "They'll last longer than the previous contingent."

A tractor came ploughing its way towards the H.Q. of Earth's expeditionary force and an officer hurried inside. He whipped off his mask, breathless, his face flushed with excitement.

"Martian breeding colony ten miles to the south," he reported.

The general looked at the rows of waiting soldiers. He swallowed his whisky.

"Too good a chance to miss," he decided. "Cameron's outpost will have to wait for reinforcements. It's a waste of time engaging the Martian armies. These damned colonists breed so fast our only hope of conquest is to exterminate the women . . . Carry on, Henderson."

The young officer went back

to his tractor. He spoke into a microphone: "March."

Number one million, two hundred and seventy thousand and seven marched with the others. Red sand extended to the horizon and beyond; it was a monotonous landscape. An hour passed. Two. Then there were dunes bordered by some limp vegetation, and hollows . . . the Martians lay in the hollows.

Henderson gave the order: "*Kill!*"

He slumped back in the driving seat of his tractor and unscrewed the top of a flask. He drank to forget. He was too young to appreciate why a whole race must be wiped out.

Number one million, two hundred and seventy thousand and seven fired his gun. The air crackled with discharge, grew bright with a blinding brilliance. A smell of charred flesh rose from the hollows beyond the dunes.

Martians, he thought, kill the Martians!

They were like the targets he had destroyed in the barracks, except that they moved. It was more fun shooting at a moving target. His first kill gave him a thrill; after that, the excitement mounted. His blood ran hot with the lust to kill. He had

been conditioned for murder and he enjoyed himself.

The soldiers moved in with guns blazing. There was no opposition, for the men were fighting Earth's armies. Here were only the females and young. It was not war, but massacre.

Henderson put down his flask when he saw that it was over.

"Form ranks," he ordered. "March."

On the way back, a dust storm caught them. The tractor bogged down. The men stood and breathed Martian sand; and, under cover of the storm, a Martian army surprised them.

Number one million, two hundred and seventy thousand and seven saw his comrades dropping about him—and wondered why. He had heard no order to rest. Half-buried by sand, the windows covered over, Henderson never saw the Martians strike . . .

Number one million, two hundred and seventy thousand and seven watched them attack, not knowing what to do. Scores of them, hundreds of them, with little guns that went "ping!" He would have liked to join in, but he knew he must wait for orders.

A very small and angry

Martian danced in front of him, waving a gun at him, hating him because he came from Earth—where the Martian's grand-parents had come from long before.

Ping!

His new chest burst as the lance pierced it. Air spilled out. He found himself toppling and red sand came up and engulfed his face. He choked on the dust that filled his mouth and nostrils and could not get any air into his lungs.

"Kill!"

The storm passed and Henderson saw what had happened. The soldiers of Earth lifted their shining weapons and fired. The Martians scattered, to wait for another dust storm to mask their next attack.

Henderson felt sick when he saw how many men he had lost. He remembered what the general had said the last time this had happened.

"Don't worry; they're expendable. Think of them as robots—they're not *men* any more."

Henderson knew that was the right attitude, the only attitude, but he still had difficulty in adjusting. War was a filthy business. Mars was rich in living space and raw materials, so Mars had to be conquered for Earth. Only,

the Martian colonists seemed to think they had a right to the planet they had found first . . . well, soon there wouldn't be enough Martians to matter. Perhaps a few would be allowed to live in reservations for tourists to look at.

But the war had to be won first.

He ordered his men to dig out the tractor and marched them back to headquarters.

Number one million, two hundred and seventy thousand and seven lay with his face in the sand. He did not feel anything and no one came to bury him. He lay with others of his kind under the twin moons, forgotten . . .

Expendable.

John Brown's body lay a-mouldering on Mars—but *his soul was raped on Earth.*

A young man ran through the back streets of one of Earth's major cities. He ran with long-limbed cleanness, his blond hair whipped back like a mane. There was sweat on his brow and fear in his eyes . . . the press gangs were out.

Behind him, a searchlight stabbed the night darkness and a cry went up: "There he goes!"

He ran between high walls,

hunted, looking for sanctuary. He had been a fool to visit Mary, but he was young and she was lovely; he could not stay away from her. He ran faster when the searchlight caught him.

The generals did not want the old and lame. They wanted the young men, strong and firm of body. Soldiers for Mars. The cream of Earth's young men must be sacrificed to the gods of war. Beautiful bodies make fine soldiers . . .

He saw, too late, the barrier ahead of him. Men closed in on all sides. Trapped! He turned at bay, knowing there was no escape, a terrible frustration.

"Oh, God," he said. "This isn't how life should be . . . *Oh, Mary . . . !*"

They held him fast while the doctor rolled up his sleeve and primed the hypodermic. He felt the prick and then he felt no more. They carried his unconscious body to the meat wagon and shipped it to the hospital.

Scalpels opened up his chest. Gloved hands withdrew the limitations imposed by God. They gave him plastic lungs capable of breathing the Martian atmosphere.

They removed glands that were unnecessary in the mon-

ster they were creating. They changed his metabolism so that he could exist on one concentrated food tablet every twenty-four hours.

They peeled back the flesh to get at the brain encased in the skull. Knives probed and cut the delicate tissue, severed nerve fibres. They worked to a blue-print, isolating those parts of the brain concerned with the higher functions.

When they finished, what had been a man was robot. It moved, it breathed, it obeyed orders—and it could exist on Mars.

Above all, it could kill . . .

They crossed through a name and wrote down a number. Provided a shining cylinder designed for mass murder with instructions for using it. They provided targets called Martians. And a uniform—how can you have a soldier without a uniform?

The band played.

Left, right, left, right, left, right.

There, beyond the silent crowd and the crying girl, was the rocketship. He climbed the ladder to Mars.

"Fine," approved the generals. "This lot will last a long time—really, you doctors *are* wonderful. It's a miracle you've performed, a miracle.."

First in a new series on
Milestones in Science.

THE BATTERY

by H. J. CAMPBELL

IN this series I am going to try to show you how the discovery of certain things—instruments, apparatus, etc.—has led to vast changes in the conduct of science. The common factor about all the devices I shall deal with is that before their introduction the branch of science in which they figured was greatly different from that same branch after their discovery. It is not only men and minds that make science what it is today. Instruments play, and have played, a tremendous part.

Consider, for example, the field of physics in general and of electricity in particular, and try to realise the magnitude of the advances made after the introduction of the battery.

Up to that time, the early experimenters had to play about with static electricity. They charged up some kind of apparatus such as the

Wimshurst machine and then had to work with a sudden bolt of electricity that was all over and done with in a flash. This sort of electricity had been known way back among the Greeks, for Thales was telling everybody in 600 B.C. all about the quality of attraction that amber acquired when it was rubbed. And it is significant that something like 2000 years passed without any real electrical knowledge being built up.

Then along came one or more of several people who at different times and by different authorities have been acclaimed as the discoverers of the battery. For the first time, scientists were able to work with *current* electricity.

Many historians believe that the first battery was the Leyden jar, invented either by the Abbé Nallet or by a Dutch physicist called Cunæus round about 1745. Galvani and Volta

had already fought a hot verbal war about the origin of the electric current that Galvani had been able to generate in a frog's leg. Maybe it was their emotional preoccupation with this point of pride that prevented their gaining the honour of being the first to make a device for storing current electricity.

But either Nallet or Cunæus, eschewing unscientific controversy, got down to serious work and produced such a device. From then on scientists were able to design experiments that needed the presence of electricity during a significant period of time. Gradually, but with increasing rate, new discoveries were made that completely revolutionised the field of physics. These were not of *fundamental* theoretical importance until people realised that the electricity did indeed flow, and required time in which to do it.

• For a long time it was thought that electricity moved from one point to another instantaneously. This belief was fostered by experiments like that of the good Abbé

Nallet who made some of his monks stand in a ring 1800 yards in circumference holding iron wires which connected them in series to a massive collection of Leyden jars. When the Abbé joined the contacts, the monks seemed to jump into the air simultaneously! Actually, of course, the current reached each one a little later than the one before—so little later that the time interval was undetected.

But as time went by and physicists were piling up data, all these little misinterpretations were ironed out and the science of electricity marched forward to the incredible complex of facts and formulæ and instruments that more or less run our modern world.

Without the battery our world would be very different. There would be no electric light, no electric trains, no electric toasters and irons and radios and typewriters and motors and lifts and immersion heaters. There would be no spark-plug-fed automobiles and no television. There would be no electronic brains and no radar detectors,

no automatic factory control. Worst of all, there would be no possibility of a greater electrified world of the future, with consequent increase in leisure.

Nowadays in the more modern pieces of apparatus the battery is left out in the cold. It has been replaced by other means of generating and storing electricity. But that should not blind us to the essential role played by the battery in the past. Power stations are relatively new. All the groundwork of electrical phenomena—the basic truths upon which is based so much of the things around us—was worked out with batteries long before the first power station was ever thought of. Always we must remember that the development and utilisation of electric current is something that has grown within the last couple of hundred years, whereas the science of electricity was—in every sense of the words—

quite static for a couple of thousand years.

Naturally, the battery is not alone responsible for the great advances in electricity. It needed to be used in conjunction with steam engines and turbines and thermionic valves and transistors. The essential point to remember is that probably no one would have thought of trying to invent these things if the battery had not been lying ready for such conjoint action.

Batteries are still made in millions. Today they play a minor role—in flashlights, secondary circuits in radios and suchlike. But whenever you buy a humble little cell, you hold in your hand a device which, truly, unlocked for mankind the secrets of a vast section of nature. When you casually switch on a flashlight you are doing something that, when it was first done, held scientists enthralled with the possibilities before them.

We get blasé, don't we?

FANZINES

Fantasy Times is the world's oldest newspaper. It is edited and published by James V. Taurasi Sr. and Ray Van Houten. British rates are 9d. per copy and 15s. per year from Milcross Book Service, 68 Victoria Street, Liverpool 1. Australian rates are 1s. per copy, 10s. for 12 issues and £1 for 24 issues from Roger Dard, 232 James Street, Perth, Western Australia. The copy to hand is the 200th issue and has a fine cover by Frank R. Paul, who has illustrated science fiction for 35 years. It is more like a newspaper than any other fanzine, and is crammed with gossip and news about (mostly American) science fiction mags. Incidentally, the news about one of our rival British magazines appears *twice* in this issue—nothing like ramming it home!

Play is edited and published irregularly by Ron Bennett of Ronhill, Little Preston Hall Road, Swillington, Near Leeds, Yorkshire. This, the second issue, contains two good poems (rare in a fanzine) and the usual letters, reviews and articles. The cover is nothing to speak of, so we won't, and our copy is not

very well duplicated. More care in production is needed here.

Etherline is produced fortnightly by Amateur Fantasy Publications of Australia and costs 6d. a copy, 12s. for 26 issues, which should be sent to 4 Myrtle Grove, Preston, Victoria. It is edited by Ian J. Crozier. The 33rd issue contains film news and various book and fanzine reviews and general Australian gossip. It is interesting to note that Australia seems to be having bother over where to hold its 1955 Convention. Where else but London, where all the best conventions are held?

Alpha, edited by Dave Vendelmans, 130 Strydhof Avenue, Berchem, Belgium, costs 4s. per year of 6 issues, and seems to us well worth it. The sixth issue, under review, is duplicated very legibly (some of it was typed on an electric typewriter, and the different type makes a welcome contrast). The Twerp makes his bow in this issue and promises to be a rival to *The Beanie* soon. There is a story, an article, a report on the imaginary convention (it even has quotations) and readers' letters. One and a

half pages are in French this time—but the rest is in better English than is to be found in some British fanzines. Still a good buy, is *Alpha*.

Hyphen No. 10 is edited by Walt Willis, 170 Upper Newtownards Road, Belfast, Northern Ireland, with the help of Chuck Harris and Vincent Clarke. It costs 1s. 6d. or 25 cents for two issues. The tenth issue contains pieces by Bill Temple, Vincent Clarke, Stuart Mackenzie, Bob Shaw and Chuck Harris; some reprints and some letters. Most has to be read more than once and all of it is good. Readers' letters seem still to be thrashing out points about the last convention; it will surely go on now, until the next one comes.

Satellite No. 3 seems to us the best issue of this fanzine, so far. It is edited and published by Don Allen at 3 Arkle Street, Gateshead 8, Co. Durham, and costs 3s. for 4 issues or 1s. a copy. It contains a story, articles and

several features including poems, readers' letters and fanzine reviews. Some of the illustrations, including the cover, are good. This fanzine does not aim to be much more than the "house organ" of the North East Science Fiction Society, but is certainly on its way up.

Fie is a quarterly Canadian fanzine and is edited and published by Harry Calnek, Granville Ferry, Nova Scotia. It costs 15 cents a copy—other rates do not seem to be mentioned. The size, duplicating and paper, compared with our fanzines, are good—but of course, the contents have a strong Canadian slant, and would tend to be unintelligible to fans in Britain—so much the worse for the latter. There is no fiction here—maybe Canadian fans aren't so puffed up as the British and are satisfied getting *good* stories from the prozines. At any rate, the thing seems more like what our idea of a fanzine should be—about fandom.

Do you know your Moon?

(Answers to questions on page 65)

- | | |
|---------------------------|----------------------|
| (1) 2160 miles. | (4) 0.6 of Earth's. |
| (2) 29.5 days. | (5) 1/81 of Earth's. |
| (3) 0.5 miles per second. | (6) 1/6 of Earth's. |

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FICTION

Though we do not normally commend the practice of nostalgia about early science fiction, we nevertheless feel that a certain amount of affection is rightly bestowed upon the works of Jules Verne because these were imaginative stories *par excellence*. Thus we believe that Dents (Aldine House, Bedford Street, London, W.C.2) have done something notable in bringing out FIVE WEEKS IN A BALLOON and AROUND THE WORLD IN EIGHTY DAYS in their Everyman's Library for Young People at only 5s. These two stories are hardly scientific, but they are none the worse for that. For those who desire to be up-to-date in historic science fiction the long trairpse around the bookshops is ended. Here is the classic at a price everyone can

afford in a form that will grace the bookshelves of all. Well done Dents.

WORLD IN ECLIPSE is the first science fiction title to come from Peter Owen (50 Old Brompton Road, London, S.W.7). It is by William Dexter and costs 10s. 6d. As a first shot it is not at all bad. Indeed, the early part of the book gives one the feeling that here at last is something of a new style in science fiction. But the quality tends to sag as the book unfolds a complex story of a devastated Earth with assorted monster aliens, flying saucers and the starting of a new colony on Earth by people who had been kidnapped from our planet long before. The ending is very sudden, so much so that we predict the imminent arrival of a sequel! On the whole, though, we recommend this

tale. From a newcomer to science fiction writing it is streets ahead of some other recent attempts. And one great thing about the book is that it is written in a mature and elegant prose. We think Dexter may do great things.

American boys grow up fast, we suppose, and that is probably the reason why *STAR-MAN JONES* by Robert Heinlein (Sidgwick and Jackson, 44 Museum Street, London, W.C.1, 7s. 6d.), which, though labelled "science fiction for boys," is a good deal more adult than some ostensibly adult books we have read lately! About the only juvenile characteristic is the tentative stretching of credibility for the sake of suspense—and even here Heinlein's incomparable technique makes the whole thing very nearly believable. The story is woven around young Max Jones who is tricked into going on a space trip during which his phenomenal memory for figures enables him to return as a temporary captain! Wish-fulfilment surely, but strikingly well done. And the adventure is interspersed with little bits of romantic love interest that raise doubts about Max's immaturity! A good book.

It's always a pity when an author tries hard and sincerely and yet doesn't quite get there, which is what Charles Carr has done with his *COLONISTS OF SPACE* (Ward Lock, 143 Piccadilly, London, W.1, 9s. 6d.). A more original plot would have helped him, for we are all a little tired of the world being in danger and a ship being sent out to another planet with a small group of people who live and love and fight and die in much the way they would have done if they *hadn't* been on a starship fleeing from a doomed Earth. But ignoring that side of it for a moment, this story fails more because the people are unreal and the dialogue is more like the kind of stuff you get in elementary textbooks of foreign languages. The situations, the conflicts and the peculiar circumstances on the alien planet can be believed without much trouble, but the way in which all this is sort of *pegged* onto the characters makes the whole thing rather silly. And yet it is obvious that Carr has taken a mite of trouble over the book. He has looked into the scientific side of things (not always coming out with the right

answers) and he has cast the book into what is considered to be the science fiction mould. Unfortunately, the result is perhaps not quite what he intended. Still, maybe he'll do better with his next book.

Hanover House (575 Madison Avenue, New York 22, U.S.A.) have turned out an anthology edited by Frederik Pohlat \$2.95. Among the sixteen pieces of fiction are three novelettes and a novel. They are all good and some of them are real first quality pieces. This is certainly an anthology that should be on the shelves of all serious fans. Here are the titles and authors (the book is called *ASSIGNMENT IN TOMORROW*): *Mr. Costello, Hero* (Theodore Sturgeon), *Angels in the Jets* (Jerome Bixby), *The Adventurer* (C. M. Kornbluth), *Subterfuge* (Ray Bradbury), *Helen O'Loy* (Lester del Rey), *5,271,009* (Alfred Bester), *The Big Trip Up Yonder* (Kurt Vonnegut, Jr.), *We Don't Want Any Trouble* (James H. Schmitz), *The Peddler's Nose* (Jack Williamson), *The Frightened Tree* (Algis Budrys), *A Matter of Form* (H. L. Gold), *Back to Julie* (Richard Wilson), *She Who Laughs* (Peter Phillips), *Official Record*

(Fletcher Pratt), *Hall of Mirrors* (Frederic Brown), *Mother* (Philip José Farmer). Very highly recommended.

Another very high recommendation goes with our notice of another anthology. This one is *WORLDS OF TOMORROW*, edited by August Derleth and published at 9s. 6d. by Weidenfeld and Nicholson (7 Cork Street, London, W.1). Derleth is something of a professional anthologist by now, and this one is fully up to his usual standard of impeccable editing; the only fault we find is his inclusion of two stories by one author. With the amount of science fiction available these days there is no excuse for this preferential treatment, even when the author is our own admired Arthur C. Clarke! Still, maybe Derleth had his reasons, though he doesn't state them—and that, come to think of it, is another fault: there is no word from the editor in the book. Even one page would have been nice, telling us something of why he chose these stories.

Again, here are the titles and authors: *The Smile* (Ray Bradbury), *The Fires Within* (Arthur C. Clarke), *Superiority* (Arthur C. Clarke),

McIlvaine's Star (August Derleth), *Brothers Beyond the Void* (Paul W. Fairman), *The Dead Planet* (Edmond Hamilton), *Like a Bird, Like a Fish* (H. B. Hickey), *The Enchanted Forest* (Fritz Leiber), *The Great Void* (Frank Belknap Long), *From Beyond* (H. P. Lovecraft), *Line to Tomorrow* (Henry Kuttner), *The Gardener* (Margaret St. Clair), *The Martian and the Moron* (Theodore Sturgeon), *Null-P* (William Tenn), *Strange Harvest* (Donald Wandrei).

You won't regret buying this. (By the way, for science fiction fans these last two books would make excellent Christmas presents!)

NON-FICTION

Arthur C. Clarke and R. A. Smith have been doing a bit of collaborating in the creation of illustrated space books. *THE YOUNG TRAVELLER IN SPACE* (Phoenix, 38 William IV Street, London, W.C.2, 7s. 6d.) is mainly textual with a few illustrations. *EXPLORATION OF THE MOON* (Frederick Muller, 110 Fleet Street, London, E.C.4, 18s.) is mainly illustrations with a little text. In each case Clarke did the text and Smith did the illustrations. The results are not

equally happy. The cheaper book is the best, we think. This is because we consider Smith's illustrations to be uncomfortably anæmic. They always look more like preliminary roughs than finished drawings and paintings. And *The Young Traveller in Space* benefits from having only three of them, whereas *Exploration of the Moon* suffers from having one on every other page—45 in all. Indeed, the former book uses illustrations (of which there are some fine photographs) merely to support the text, but the latter uses the text to support the illustrations. While both books are splendidly produced, the disparity in price cannot be overlooked. We sincerely regret that we cannot recommend *Exploration of the Moon*, but we highly recommend *The Young Traveller in Space*. The titles should make the contents obvious, and these contents are dealt with in the strictly accurate manner for which the text-author is well-known.

Patrick Moore is becoming rather prolific at turning out books on astronomy and space, and his latest, *WORLDS AROUND US*, is as superficial and fragmentary as most of his others. This is published

by Frederick Muller (110 Fleet Street, London, E.C.4) at 6s. in their "True Book" series. As such it is intentionally juvenile, and that may be some justification for the enormous amount of idle chatter that the book contains. The title is rather misleading in that the book does not deal so much with the planets as with Mr. Moore's views on the controversial questions involved—such as where life exists and what kind of life it is and what the canals of Mars are and so forth. Unfortunately, Mr. Moore, despite his connections with astronomical societies, cannot be considered to be an expert on these matters. The publishers would do well to remember that the word "True" in their serial title places upon them a certain responsibility to ensure that books in this series are factual and accurate. *Worlds Around Us* is neither.

Two booklets have recently appeared, dealing with much the same subject but from rather widely different viewpoints. One is *SCIENCE AND INDUSTRY—THE PATTERN OF THE FUTURE* by Sir Harold Hartley (University of Southampton, 2s. 6d.) and the other is *SCIENCE AND OUR*

FUTURE by Roy Innes (Lawrence and Wishart, 81 Chancery Lane, London, W.C.2, 2s. 6d.). When we point out that the latter has a preface by Professor J. D. Bernal, the political slant will be obvious, but should not blind us to the disturbing *facts* enumerated therein. The theme of Innes is that in Britain at least, the main scientific effort is being directed at militarism: 18s. in every £1 spent by the Government on scientific research goes towards one of the military or atomic energy Departments; only about one third of the money spent by private industry goes towards essentially peaceful research. It is difficult to remain satisfied with this situation—and Innes suggests that fundamental political and economical changes will have to be made if science is to be freed from this millstone of war effort. Whether his methods for effecting these changes are the best is, of course, a matter for conjecture. But we definitely recommend our readers to study this booklet very carefully. Sir Harold Hartley's booklet takes a rather more optimistic outlook, though still realistic, to

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the future trends of science, and is of special interest for its prognostications about the role of science in world affairs in A.D. 2000. You'll like it very much.

Rathbone Books (51a Rathbone Place, London, W.1) have brought out the first two volumes in their series: "The World in Pictures"—and these are of the same high quality of production and content as the *Adventure of the World* (reviewed recently). They cost 4s. 6d. each and are worth at least twice that. We really cannot go high enough in our praise of the truly excellent full colour illustrations in MOUNTAIN AND VALLEYS and ICEBERGS AND JUNGLES. Here, in attractive, authoritative form, is the story of the Earth. Not geography or anything as limited as that, but something wider and of more importance that just hasn't got a name. These books are eminently suitable for any age group and are part of the equipment of all educated (in the real sense of the word) people. They get the highest recommendation we can give.

IN PSYCHOLOGY FOR EVERY-MAN (Watts, 5 Johnson's Court, London, E.C.4, 2s. 6s.) A. E. Mander has

produced an excellent introduction to practical psychology, though whether some of his ideas go beyond the pragmatic is debatable. Nevertheless, little can be said against his doctrine of the thirteen basic needs of mankind and the tangled mental lives that follow ungratification of those needs. The book is useless for those wishing to learn psychology as an academic subject—it is not intended for that—but the fact that it has seen fourteen impressions since 1935, when it was first published, may be some indication of its value in real life. Certainly it is well worth the modest price asked for it.

Taking pictures underwater has often seemed to be a pastime that lacks definition. That is not the case with Pierre de Latil who has written THE UNDERWATER NATURALIST (Jarrolds, Stratford Place, London, W.1, 16s.). De Latil dives and photographs in the aqueous medium with some purpose, and this account of his adventures in search and study of water life makes fascinating reading. The style and technical level have an appealing simplicity without being naive. The story ranges over many

stretches of water that abound with interest, and we are left feeling that we really *know* these places. Much of this knowledge is new; could only have been gathered at first hand. It is refreshing to find a book on underwater activity that is not confined to over-dramatised accounts of more or less ordinary angling. Highly recommended.

Among our readers, we know, are many teachers. For them, and for parents concerned about the education of their children, **BIOLOGY IN THE SECONDARY MODERN SCHOOL** by T. L. Green (Allman, 17 Creechurch Lane, London, E.C.3., 12s. 6d.) is a text full of significance. Few such teachers or parents are happy about the way in which biology is taught at present, and they are bothered about this, for biological knowledge has enormous implications for adult life, and those who do not possess it can always be picked out of a crowd. Green, who is Professor of Education at the University of Ceylon, Colombo, has studied this problem over many years and in many places. There can be little

doubt that he knows what he is talking about. Some of his ideas may shake the dichards to the core, but that would be a goodly thing! And we would say this: if a biology teacher is conscientious, he will buy this book. What more need be said?

When the sorry business of the Piltdown Skull blew up it was realised that quite a few books needed extensive revision on this point. One of the first to be revised was **HISTORY OF THE PRIMATES** by W. E. Le Gros Clark (British Museum (Natural History), Cromwell Road, London, S.W.7, 4s.) and this was appropriate since Professor Le Gros Clark had a large hand in the exposé, as did a number of people at the Museum. Now, then, we have a really up-to-date and authoritative booklet on this subject. Anybody interested in evolution is incomplete without it. Anybody with pretensions to knowledge of Man's ancestry is a hypocrite without it! Fully illustrated, written for the non-specialist, this book will interest all intelligent people.

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Projectiles

Thanks for the idea. And what do you mean by "astronomy"? It's a big subject you know.

ACTIFANS

Here in Toronto we have the most active group in Canada, and it is entirely possible to say that we have the most active group in North America. Dean Grennell himself said that we have one of the most prominent clubs in North America. Proof of this is listed on the left-hand margin of this letter-head. You will see there a list of eight different fanmags, being produced in Toronto alone. Fandom in the remainder of Canada seems to be more or less static. Les Crouch is still publishing *LIGHT* for Fapa, as he has been doing for years. Harry Calnek is still publishing *FIE*, and we are now waiting for the third issue of this mag. Dutch (Georgina) Ellis is still supposedly publishing *MIMI*, but I haven't seen a second issue, and I haven't heard from her for months, but that could be because I owe her two letters.

Gerald A. Steward, 166 McRoberts Avenue, Toronto, Ontario, Canada.

Thanks for taking the trouble to write to us, Gerald. Keep on doing

OVERSEAS SECTION

PEN PAL

I have been reading your periodical for some time now, and I think it's excellent (both fiction and scientific accounts) and, like the many other readers, I find the covers extremely original and artistically done. I hope you do not mind if I present a few suggestions relating to the articles in your magazine. If possible you should introduce a series of articles about atomic physics in a more or less elementary form (so that it would interest both the layman and scientist). Also more material about astronomy (which is part of the main basis of S.F.) I will be very glad to correspond with anyone who is scientifically-minded, a student of preference.

R. A. Javitch, 1589 McGregor St.,
Montreal 25, Quebec, Canada.

The series on atomic physics will be starting soon, Mr. Javitch.

that, if you have time. Shame on the rest of Canada! For the benefit of those who want Canuk fanzines, we give here all those you mention; A BAS, Boyd Raeburn, 14 Lynd Avenue; CANADIAN FANDOM and GASPI, Gerald A. Steward, 166 McRoberts Avenue; TORATIONS and FILLER, Norman G. Browne, 33 Lyonsgate Drive, Wilson Heights; IBIDEM and DEJA VU, P. Howard Lyons, P.O. Box 561, Adelaide; ESCAPE, Fred J. Woroch, 285 Withrow Avenue — all in Toronto, Ontario, Canada.

SPLASH

I am pleased to say I have just managed to obtain a copy of *Authentic* No. 48, and I feel I must congratulate you on your fine cover. I was sorting through the S.F. mags at our unit bookstall, when I saw a vivid splash of colour which made all the books around seem dull and uninteresting (liken it to a shining star in a universe of darkness, if you wish). Yes, it was *Authentic* just lying there begging to be bought. I knew there and then it would be good; I wasn't mistaken. The stories were excellent—they made me think. That is what I like, and the features were on an equal par.

A suggestion I would like to put forward is that you consider compiling a crossword dealing with the facts and fiction S.F. fans think about. I am sure it would meet with enthusiasm. It would also go towards making the magazine even more original. Out here in this dull, boring country, life is not a bed of roses, but each month when *Authentic* comes along I am overjoyed and things brighten considerably. Yes, *Authentic* is the

book for me, and it always will be, as I can't see it slipping under the competent eye of H.J.C. Keep up the good work.

22787393 Cpl. Gray P., No. 4 Sub Depot, R.A.O.C., Timsan, MELF 10, Egypt.

We picture you, Peter, sitting among the pyramids with Authentic in your hands and a smile on your face more beatific than the Sphinx's. That how it is?

PROTEST

I'm afraid I must protest against the letter signed "M. A. Bos" of the "North Shore Futurian Society" published in *Authentic* No. 46. In brief, Mr. Bos appears to be claiming for this "North Shore Futurian Society" of his the actual work of the Futurian Society of Sydney. The Futurian Society of Sydney was founded in 1939, and is thus one of the oldest existing fan clubs in the world. In 1952, 1953 and 1954 it sponsored Conventions in Sydney, as, no doubt, you are aware. Late last year it moved into its own clubroom (third floor, 124 Oxford Street) and installed its library, including at the moment 346 books and about 900 magazines. For many years the Futurian Society of Sydney was the only fan organisation in Australia, and since 1952 it has done a great deal to assist other centres, Melbourne, Adelaide, Canberra, Brisbane and Newcastle, in starting new clubs. At present we are planning to open a branch in Sydney's remote Western suburbs. What this outfit Bos talks about may be or may do is something beyond my knowledge—but it certainly has nothing to do with

us, our Convention last Easter, or our Clubroom. I hope you will correct this impression in your columns. Bos' panhandling suggestion that you should give "a page or two" each issue to plugging fan clubs (as if you weren't doing better than that with your departments already!) is fine—except that you can see what you let yourself in for.

Graham B. Stone, Director, Futurian Society of Sydney, Box 4440, G.P.O., Sydney, N.S.W., Australia.

Mr. Stone and Mr. Bos—we leave it to you to fight out this thing! We're too far away to know what's going on, but we hope nobody spills blood.

OEDIPUS?

First of all, I think the writing style of your editorial in the recent (September) *Authentic* is rather a bit too patronising—like a wise old father talking down to a small child. To me, the writing style was more akin to propaganda-style writing. My own disinterest in your mag stems from a bias towards American-type science fiction and American Big Name Authors. The other factor is the competition you have with all the many other stf magazines on the stands. Most readers of stf start out as "mass-readers" and buy all the stf mags. Then their reading matures and their tastes mature and they begin to specialise. One fan I know quite well only buys anthologies on the theory that all the best stories will eventually be anthologised. Another local fan here in town only buys pocket-books. I, myself, buy the top three regularly: *Astounding*,

Galaxy, and *F&SF*. I also occasionally buy *SFA* and *Space S-F*, and *Rocket Stories*, when they appear. I occasionally buy the odd other mag, too, if the line-up of authors looks particularly tempting. I buy any pocket-books that have material in them that I haven't read before. I also belong to the S-F Book Club and take about 90% of their selections. Ironical. Toronto has a top fan artist named Dave Stone. To differentiate between his artwork and the top pro artist by the same name he uses the brush-name of DAVIS. Now I notice he may have to change his name again!

Norman G. Browne, 33 Lyonsgate Drive, Wilson Heights, Toronto, Ontario, Canada.

Guess you must have an Oedipus complex, Norman! What's wrong with a wise old father? You may be one yourself one day! (Not that we intended to sound patronising, of course.) Okay, you go on reading those Big-Name guys, but don't forget that they were little guys once, and some of their best early work appeared in "little" magazines.

HOME SECTION

EUPHORIA

Many thanks for a splendidly perfect magazine. Every monthly *Authentic* guarantees deeply satisfied contentment, experienced solely upon having had my money's worth. I loved the little lyrical tragedy — TRYST. One can repeatedly read this superbly poignant gem of literature, even to

knowing it by heart. The thoughtfully simple drama of style is, I think, a triumph of enjoyable achievement. Much more of this author, please!

Zada M. James, 118 Fenside Avenue, Styvechale, Coventry.

Your praise overwhelms us. We just don't know what to say! By the way, we don't mean to be personal, but are you named after a Martian aunt or something?

LIKE FATHER

Just a line to say how much I enjoyed the covers on the series *From Earth to the Stars* and am looking forward to the new series *Tour of the Solar System*. I have made an album of the *Earth to the Stars* series and intend to do the same with the new series, as I want to pass them on to my young son when he is old enough.

Mr. R. Goldberg, 7 Windsor Avenue, Edgware, Middlesex.

That's the way to bring 'em up! Undoubtedly the little chap will have a fine start in life. Make sure he knows what they are all about, too.

ERRORS

Have just received *Authentic* No. 49, and as usual, am reading the articles first. Haven't started the stories yet. You might like to know that yours is the only British SF mag to which I have subscribed regularly. The other is the American *Astounding*, and I find it difficult to choose between them—almost a photo finish. Have been reading SF since 1937 when I was 13, and still have some of the pre-war

Tales of Wonder. I have quite a sizeable stock now, and the problem of space arises. I often read stories over and over again, particularly those that give the reader something deep to think about. There are three factual errors in Mr. Byford's article. First, gravity varies in inverse proportion to the square of the distance (not to the distance). Secondly, the Earth's diameter is roughly 8,000 (not 5,000) miles. Thirdly, whatever made him suggest that three million miles is half the distance to the moon? Any schoolboy knows that the moon is only a quarter of a million miles from the Earth—average 240,000 miles. Perhaps he comes from another Solar System!

K. R. Green, 55 Crescent Lane, London, S.W.4.

You've certainly caught us out here, Mr. Green. How all those elementary mistakes slipped through we just can't imagine. We must have been very rushed at the time. Anyway, we apologise and hope it won't happen again. Forgive us? (Of course, the calculations in the article were based on the inverse square law.)

MERCER AGAIN

You'll doubtless be pleased to hear that the cover picture on issue No. 48 is the most attractive cover picture I've ever seen on *Authentic*. You'll doubtless be further gratified to hear that the articles in the issue, taken as a whole, are considerably more interesting than the articles of any other issue of the mag. so far. You'll naturally be positively overjoyed to hear this. The weak point in this issue is the stories. RECOIL had a point, only it took such a hell of a time getting

there. And *LAST JOURNEY*, though not much use, raises a point again—the question of fantasy. I have no objection to same—in fact I usually seem to prefer it. BUT—you keep on plugging the old story—“*Authentic* has no place for fantasy.” And the wandering Jew legend is fantasy, pure and simple. It makes no difference whatsoever, having him located on Mars.

Authentic Clangers Dept.—the word “Proteus.” Spelt that way (usually with the capital P) it’s a NOUN, not an adjective. I suppose that if you’d taken the trouble to put in an extra O, making it “proteous,” it could be used as an adjective. But the accepted adjectival form is “protean.” You use “proteus” adjectivally on pages 105 AND, for good measure, 134.

Archie Mercer, 434/4 Newark Road, North Hykeham, Lincoln.

My, Archie, aren't you erudite! Didn't you hear what Humpty Dumpty had to say about this? But you're right of course—as you so often are. (Thanks for the praise.)

RUINED

I have intended to write to you since issue No. 39. Naturally, I like *Authentic* or I would not buy it. I was very pleased when you started to feature on your covers *From Earth to the Stars*. The first four issues were exceptional—so good that I spoiled my magazine to cut out the painting, as they look very realistic as a series in an album. I thought to myself: this is something, good reading material and each issue with a brilliant scientific cover. Then came issue 39. You

ruined the cover by scrawling the lead story title over it. Why? Your regular readers will read the issue whether you wreck the cover(!) or not and new customers will look inside before they buy anyway. I expected you would have a flood of letters as your correspondence re covers was large before the new style. Out of several recent issues I particularly liked these stories: *Cuckoo* by Jordan, *Blemish* by Christopher, and *Home is Tomorrow* by Morgan, and agree with recent correspondents, plenty of short stories, as the basic idea of the story is not overworked, and more space-travel—not Dan Dare style, but exploration and alien life and ways. I think there are far too many stories of post atomic war struggles. With all the atomic threats floating above us, we want stories to cheer us up! My neighbour, who wrote in issue No. 40 *Revolt to Space-Flight* (treason) has obviously been kept awake at night by aircraft at Swinderby and is therefore biased against flight. Finally, is it possible to buy the cover paintings, as I presume these are originally painted and photographed after, with the title additions. If you have a reader at Lincoln or near interested in flying saucers I would like to contact him. P. Hammerton, 20 Boultham Ave., Lincoln.

Several other readers have mentioned this point about lettering on the cover, Mr. Hammerton—and, as you will see, we have bowed to your wishes. Thanks for your praise and your analysis of story ratings. Sorry—'fraid the covers are not for sale.

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MIRACLE

Honestly, I can't see how you consider it a miracle to have a fanzine published in London. London should be leading the field of fanzines. London, the heart of British Science Fiction for years, and out of all the fen in the area not one has ever lifted a finger to produce a regular fanzine. Yet we have fanzines printed in many trans-Londonian places. If you rate it a miracle to see a fanzine from London, then no doubt it is ultra-miraculous to see one from the North-East where fen are almost unknown?

Don Allen, 3 Arkle Street, Gateshead 8, Co. Durham.

Don, old chap—THAT IS THE WHOLE POINT!

POESY

Don Allen (issue 44) needs a feud in *Authentic*. How's this? I like Berry's style of writing. As for him copying Bradbury's style, humbug! This form of writing is excellent for shorts, it's like poetry, it's an art that's trying to express itself. It makes you read it over and over again, and each time you appreciate the story more. I am fifteen, and would like to get in touch with teen-age fans anywhere. Would they please write to me?

Bill Harry, 69 Parliament Street, Liverpool 8.

Glad you agree with us about Berry, Bill. You're a man of perception.

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M.S., Chingford.

Dear Sirs,

I am writing to say thank you for your APAL. It has worked wonders. After smoking 40 cigarettes a day, I have stopped smoking.

H.M., Dumfriesshire, Scotland

Dear Sirs,

It is a year ago last November that I topped smoking, with the aid of APAL: no cigarette has touched my lips since the day I received the APAL. I sleep better and have not had a cold since, and I am saving 24/6 every week.

G.A.S., Ossett, Yorks

Dear Sirs,

I am very pleased with my APAL. I have been much better in health since using it. It certainly takes away the longing for a smoke. Thanking you very much.

Mrs. C.A.H., Coventry

Dear Sirs,

Fifty cigarettes a day for over twenty years is pretty good going and nobody would have me believe that I could ever give it up. Your APAL arrived four and a half weeks ago and I am delighted to say that I have not smoked since.

F.F., Hertford.

Dear Sirs,

I bought an APAL from you nearly eighteen months ago, and it did for me all that you said it would. I have not smoked for seventeen months, and have no desire at all to do so.

G.H., Marham, Norfolk.

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